BRITISH MUSEUM

# GUIDE

TO THE

# MAUDSLAY COLLECTION

OF

# MAYA SCULPTURES

(CASTS AND ORIGINALS)

FROM

# CENTRAL AMERICA

WITH 8 PLATES, 20 ILLUSTRATIONS
AND A MAP

PRINTED BY ORDER OF THE TRUSTEES
1923

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Tikal: Temple on Lofty Foundation-Mound.

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BY FREDERICK HALL

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# PREFACE

THIS Guide is a commentary upon the monuments of the Maya people of Central America, as revealed to Western civilization by the field-work of Dr. Alfred Percival Maudslay. The exhibition consists, in the main, of casts made from Dr. Maudslay's moulds, but a few original sculptures collected and presented by him are also included.

The Collection, apart from its significance as a great individual achievement, is important in so far as it provided the material for the first comprehensive survey of Central American art and culture.

The thanks of the Trustees are due to Mr. Keith Henderson, for assistance in the preparation of the illustrations; to Colonel F. H. Ward and Professor W. H. Holmes, for permission to reproduce the illustrations Pl. III. 1 and fig. 20 respectively; and to the Medici Society for the loan of the blocks used in Pl. II and figs. 10, 12, 16, and 17.

I have read through the proofs of the Guide, but the preparation of it has been the work of Mr. T. A. Joyce, Deputy-Keeper of the Department, who also arranged the exhibition.

R. L. HOBSON, Keeper.
DEPARTMENT OF CERAMICS AND ETHNOGRAPHY.

*December* 1922.

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# INTRODUCTION

THIS exhibition, mainly of casts, but including a few originals, represents the results of the field-work of Mr. Alfred P. Maudslay. At the time that Mr. Maudslay commenced the researches, which occupied his life from 1881 to 1894 and took him no less than seven times to Central America, very little was known of the great Maya semi-civilization, which, as the highest expression of aboriginal American culture, finds its only rival in Peru and Bolivia. From the year 1843, when Prescott wrote the *Conquest of Mexico*, public interest was centred in the Aztec of the Mexican Valley. It is true that behind the Aztec lay a nebulous 'golden age' associated with a people known as Toltec, and the published travels of John L. Stephens (*Incidents of Travel in Central America, Chiapas, and Yucatan*, 1839) had brought to public notice the existence of architectural remains farther south, to which Prescott refers, almost uneasily, without appreciating the fact that here lay the source of Mexican culture. Later researches have made it evident, not only that the Toltec period represented a real cultural epoch, of far longer duration than that of the later Aztec, but that the Toltec themselves received their inspiration from their neighbours to the south and east, the Maya.

In a short guide such as this it is only possible to refer to the works which stand as archaeological landmarks. References to ruins in southern Mexico and Central America exist before the time of Stephens, but the permanent value of Stephens's account lies, not only in the accuracy of his descriptions, but in the illustrations which accompany his text.

These were the work of an English artist, Frederick Catherwood, and the correctness of his drawings, remarkable at the time when Maya hieroglyphs were an unknown thing, provides the chief reason why Stephens's book may be regarded as a classic.

Maudslay's researches inaugurated the first intensive study of this remarkable cultural field. They included a detailed survey of the principal sites known by report, and extended over an area reaching from Chichén Itzá (Yucatan) in the north to Copan (Honduras) in the south, from Tikal and Ixkun (Guatemala) in the east to Guatemala City and Palenque (Chiapas) in the west. The difficulties encountered in such an investigation can hardly be overestimated. In the southern and central area the climate is excessively trying; the sites were overgrown with a dense vegetation which had to be cleared under circumstances of

extreme difficulty. But Maudslay produced his surveys, and more than that. Accurate moulds of the inscriptions, and even of entire monuments, were obtained by means of paper squeezes, and, in some cases, of plaster. From these moulds, transported to England, casts were made, and the results were presented to the British nation. For a short time these casts were exhibited at the Victoria and Albert Museum ; they were then dismantled and placed in store. Now, after some thirty years, they have been taken over by the Trustees of the British Museum, and once more placed on exhibition.

But although the floor-space of the National museums has hitherto failed to provide adequate recognition of Maudslay's pioneer researches, the results of his labours have been rendered accessible to students through the medium of the archaeological volumes of *Biologia Centrali-Americana*, which owe their publication to the enlightened and appreciative generosity of the late Mr. F. Ducane Godman (a Trustee of the British Museum) and Mr. Osbert Salvin. This work is not only the one essential text-book for all students of Central American archaeology, but a model of non-controversial exposition of facts.

## The Maya

The people known as Maya, in the broadest sense of the word, consisted of a number of tribes spread over a wide area, and speaking dialects of the same language. The particular development of aboriginal culture which the present exhibition illustrates extended over the Mexican provinces of Tabasco, Chiapas, Campeche, and Yucatan, our own colony of British Honduras, the Republic of Guatemala, and the northern portion of the Republic of Honduras. Maya speech extended farther ; to the north it prevailed among the Totonac population of the Mexican province of Vera Cruz, and, in even purer form, among the Huaxtec of the Panuco Valley. But the entire absence, in the Totonac and Huaxtec areas, of monuments bearing inscriptions in the characteristic Maya hieroglyphs provides evidence that these peoples played no part in the great cultural development which is sketched in this guide.

The physical characters of the country are, in brief, the following. A mountainous ' backbone ', with a short and rapid slope towards the Pacific, and a longer and more gradual descent to the Atlantic, prolonged, in Northern Guatemala, Campeche, and Yucatan, by a low-lying limestone extension of recent geological elevation from the sea. The climate varies with the altitude. In the lowlands, the so-called *Tierra caliente*, grow cacao, rubber, vanilla, coco-nuts, and other palms. The uplands, or *Tierra fria*, are covered with oak and pine. The intermediate

zone, the *Tierra templada*, provides a transition between the two. In the low-lying country of the Atlantic slope the rainfall is very heavy and the vegetation dense. The climate, consequently, is unhealthy for Europeans, and the forestal growth is the principal obstacle in the way of archaeological investigation, since it renders the ruins extremely difficult to locate, and contributes seriously to their decay. The *fauna* is rich, and includes the quetzal and other birds of gorgeous plumage, the tapir, jaguar, peccary, deer, and alligator. The tapir and alligator are significant from the religious point of view, since the former was regarded as the lightning-animal, and the rain-gods wore a mask resembling its rudimentary trunk, while the latter suggested the form in which the 'earth-monster' was portrayed in Maya art. From the economic point of view, however, the deer and the turkey were of greatest importance in so far as they were the principal food-animals of the region. But, though the Maya were hunters and trappers, they were also agriculturists, and, at this early date, maize in its cultivated form, the result perhaps of centuries of intensive agriculture, was their most important food-plant. The evidence of the monuments proves that they were excellent weavers, while the evidence of the spade bears witness to their skill as potters. Of metals they had some knowledge; they worked gold and copper, the latter, owing to an accidental admixture of tin, being in fact a bronze. But their tools were in the main of stone. Gold is of course useless for the fashioning of implements, and their copper-bronze was rare and consequently employed in the manufacture rather of ornaments than of tools. Adze- and axe-blades of hard rock, as well as tools of obsidian, are common in the Maya area, and it is practically certain that the monolithic remains, which constitute the most notable relics of Maya culture, were chiselled out by means of stone implements, as were the monolithic statues of Easter Island, and the megaliths of Stonehenge.

Apart from their artistic value, these remains of Maya culture have a peculiar importance, in so far as individual monuments bear dates in the native script, and can therefore be referred to a definite point in the local chronology. The correlation of that chronology with our own is another, and a very difficult, question, to which reference is made later; but the former fact enables us to determine their sequence, and to estimate the relative antiquity, and the length of occupation, of individual sites. The problem presented by the discovery of the early Maya settlements, far down the Atlantic slope of Central America, comprised in a triangle bounded, roughly, by Palenque (Chiapas) in the north and west (though Palenque is not one of the earliest sites); Uaxactun, Tikal, and Naranjo (Guatemala) in the north and east; and Copan (Honduras) in the south, is, briefly, this. In

a region, for the most part overwhelmed in dense tropical jungle, entirely cut off from the Pacific and any possible Polynesian or Oriental influence by a lofty mountain range and wide tracts of forested country, difficult to traverse and yielding no archaeological relics which are not obviously late reflections of Maya culture, there exist groups of architectural remains, stone temples erected on lofty pyramids, disposed around sunk courts enclosing monolithic *stelae* and altars, as well as, occasionally, elaborate complexes of buildings erected on artificial mounds.[1] Further, it may be regarded as a sure fact that these sites, the result of strenuous labour, extending over centuries, on the part of a numerous population, had been abandoned and practically forgotten at the time of the Spanish conquest.

The problem has not yet been solved in its entirety, but considerable progress has been made by careful collation of evidence from various sources, and there is every hope that intensive study may enlarge still further the sphere of present knowledge and conjecture.

## Sources of Information

It is impossible within the limited compass of a guide to enter into the details of a study which has absorbed the attention of experts over many years. Briefly, the starting-point of all investigations lies in Yucatan, where the early Spanish explorers, before they came in contact with the civilization of Mexico, discovered the legitimate heirs of Maya culture, inhabiting villages of considerable size, with stone-built shrines erected on pyramids, using a hieroglyphic script and a calendrical system almost (though not quite) identical with that of the early Maya, and preserving traditions which can be shown to connect them beyond doubt with sites which are, indubitably, extensions of the Early Maya civilization.

The material with which we have to deal is this: First of all, the architectural remains, which show a definite development, both in structural and artistic qualities; secondly, the literary evidence provided by the monuments (because they bear inscriptions which register dates in the native chronology); thirdly, the few surviving native manuscripts; fourthly, the traditions of more than one tribe of Maya stock, reduced to writing after the Conquest; and, finally, the accounts of the earliest Spaniards who came into intimate contact with the natives of Yucatan. The most convenient method of dealing with these will be in their inverse order.

Of the Spanish authorities the most valuable is Bishop Landa,

[1] A relief plan of the ruins at Copan is shown on Pl. II. This will give a good idea of an important Old-Empire site.

first Bishop of Yucatan, whose *Relación*, written in 1566, was not discovered until 1863. In addition to its value as an excellent account of the Maya of Yucatan, as he knew them, his work is of primary importance in so far as it contains an account of their calendar, with illustrations of the signs employed for the months and days. Upon his record is based our partial interpretation of the inscriptions carved upon the early monuments.

Of the native traditional records, the most important are the so-called ' Books of Chilan Balam ', reduced to writing in post-conquest times, but preserving the history of the Tutul-Xiu clan, the centre of whose power at the time of the Conquest was situated at Mani in Yucatan. These chronicles are accompanied by dates according to the late Maya system, which was a modification of that exemplified in the earlier monumental inscriptions and can be co-ordinated with them. The Popol Vuh, which contains the legendary history of the Quiché peoples in the region of Lake Atitlán in western Guatemala, is invaluable as a record of Maya mythology, but shows traces of northern influence, and sheds no light upon the chronology of the monuments. The Annals of the Kakchiquel, neighbours of the Quiché, which record the history of the Xahila clan of that tribe, have less connexion with the great past of the Maya and bear even more obvious traces of northern influence. In any case, neither in the Quiché nor Kakchiquel area have ruins been found which can be regarded as comparable or contemporary with those of the Central Maya region.

Of documents surviving from pre-conquest times, only four (or rather three, since the two halves of one are preserved in different collections under different names) are known. The rarity of these purely native manuscripts at the present day is due to the fanaticism of the early missionaries, whose misguided zeal led to the wholesale destruction of the aboriginal writings. One, the *Codex Dresdensis* (preserved at Dresden) is of primary importance. Earlier than the others, it bears a closer relation to the monuments, and most of the pioneer work upon Maya hieroglyphs consisted in attempts, successful in the main, at interpreting its subject-matter in the light of Landa's newly discovered *Relación*. The others are the *Codex Peresianus*, in Paris, and the *Codices Troano* and *Cortesianus* in Spain (the last two being portions of the same manuscript). The calendrical computations of the last three relate them definitely to a period later than the Dresden Codex. Apart from their use as material, which, by the application of Landa's information, gave the early investigators an insight into the extent and complexity of the Maya calendrical system, these manuscripts provide an iconography of the Maya deities, and show the glyphs which represent

their names, although these glyphs cannot as yet be transliterated.

Finally, the monuments themselves, bearing inscriptions in characters closely resembling those of the few remaining Yucatec manuscripts, to which the *Relación* of Landa furnished a partial key. These monumental inscriptions were first given to the world with scientific accuracy by Maudslay, and in numbers sufficient to render possible the comparative method of criticism. With this material at their disposal, scholars such as Förstemann, Goodman, Bowditch, and Seler (to mention a few of the pioneers) laid the foundation of the study of the Maya script, a study which in more recent years has been considerably advanced by the published work of Morley.

## Maya Chronology

Before proceeding farther, it will perhaps be best to give a short account of the chronological system elaborated by the early Maya. That system, according to internal evidence, appears to have undergone several modifications. Starting with an arbitrary count of 260 days, it seems to have been modified so as to bring it into relation with the solar year. The first attempt was unsuccessful, since it resulted in a succession of periods of 360 days. The addition of five 'unlucky' days, brought the time-count within one whole-day computation of the solar year, but the underlying principle of a 260-day count remained unaltered. In approaching the study of Maya chronology, two points have to be borne in mind. First, that the unit of calculation was the single day. Second, that the Maya, in reckoning a sum of days, recorded only *complete* days, according to a system to be explained later.

### *The Tonalamatl*

To deal first with the count of 260 days, which appears to be the basic element of Maya chronology, the first fact to be noted is that the days were grouped in successive series of twenty. We in Europe observe a definite series of weeks, each of seven days, the units of which are known by distinctive names from Sunday to Saturday. The twenty Maya day-names, as recorded by Landa, were as follows : [1]

| | | | |
|---|---|---|---|
| 1. Imix. | 6. Cimi. | 11. Chuen. | 16. Cib. |
| 2. Ik. | 7. Manik. | 12. Eb. | 17. Caban. |
| 3. Akbal. | 8. Lamat. | 13. Ben. | 18. Eznab. |
| 4. Kan. | 9. Muluc | 14. Ix. | 19. Cauac. |
| 5. Chicchan. | 10. Oc. | 15. Men. | 20. Ahau. |

[1] C is pronounced hard, like K ; X is pronounced, according to the early Spanish transliteration, like SH ; I and A as in French ; U like the English OO ; CH as in English.

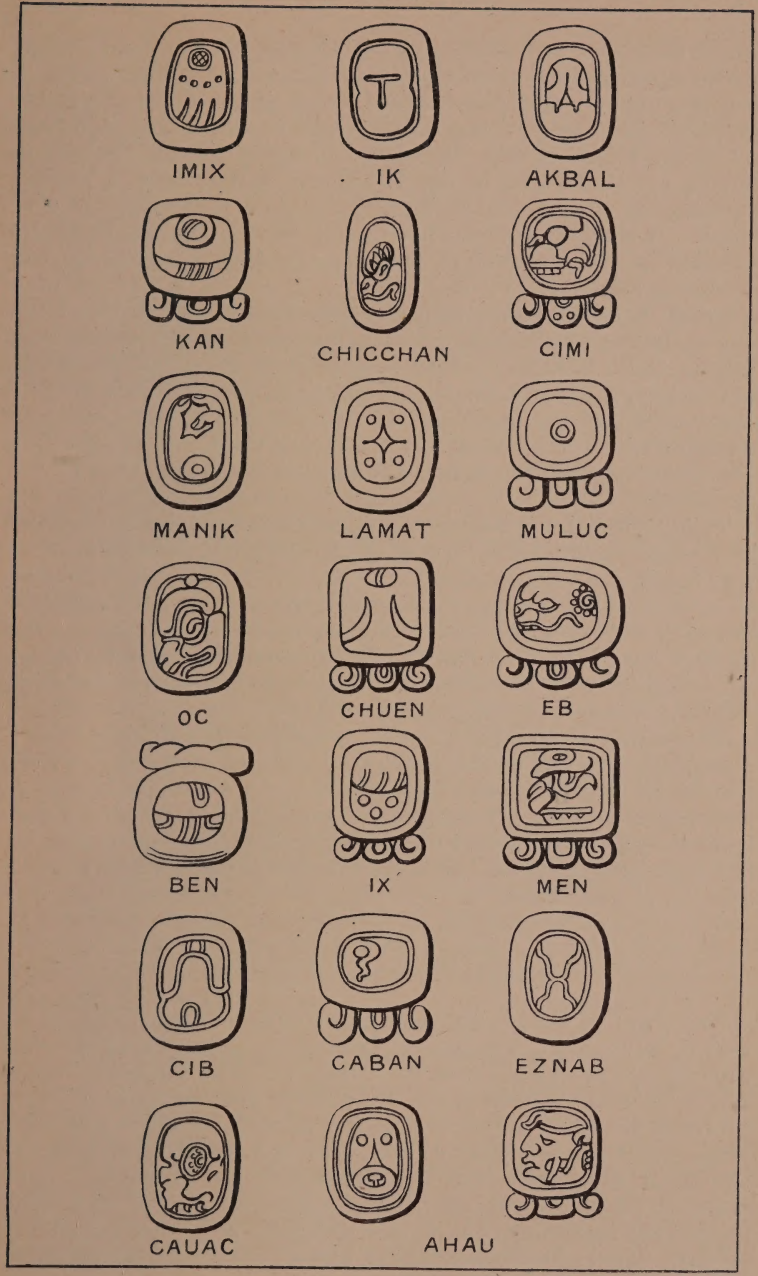



Fig. 1. Maya Day-Signs.

These days were represented by certain signs in the manuscripts, which approximate more closely to the corresponding signs on the monuments than the hieratic script of Egypt to the hieroglyphic. To disregard the manuscripts, to which this guide has no direct reference, the day-signs, as appearing on the monuments, are illustrated in fig. 1. There is, it is true, a certain variation in their actual form, but the main characters are constant. A single day indicated merely by its sign would fix its position in a time-count of only twenty days; just as, in our chronology, the term 'Wednesday' would fix a day only in a count of seven. But with the day-signs were combined the numerals one to thirteen, in such fashion that the count ran: 1 Imix, 2 Ik, 3 Akbal, 4 Kan . . ., 13 Ben, 1 Ix, 2 Men, and so successively. It is clear therefore, since the numbers 20 (the number of the day-signs) and 13 (the number of the associated numerals) have no common factor higher than 1, that $20 \times 13 = 260$ days must elapse before the day 1 Imix reappeared in the time-count.

This 'round' of 260 days appears to have been of great importance, and, at the time of the Spanish conquest of Mexico, was found surviving amongst the Aztec. In Mexico it appears as a ritual and divinatory calendar, foretelling good and bad luck for any enterprise of mundane affairs, according to the significance of the numeral, the day-sign and the various deities who presided over the individual day, and the columns in which the day-count was arranged.

This round of 260 days, known usually by its Mexican name, *Tonalamatl*, ran in a continuously recurrent circle throughout the whole of the Maya dating system. As remarked before, it was probably the earliest form of calendrical reckoning. But from the earliest times of which any record survives, it was, in the Maya area, combined with another system which bore a closer relation to solar time.

### *The Haab, or 'Year'*

The days of the Maya year were divided into 'months' of twenty days each. There were eighteen of these 'months', and the eighteenth was followed by a period of five 'unlucky' days, which brought the sum of days in a Maya year to 365. It seems probable that, in their first attempt to measure solar time, the Maya fixed upon a year of 360 days (i.e. eighteen months of twenty days each), since the additional five 'unlucky' days bear all the stamp of an afterthought, and one of the units used in the reckoning of time was, as will be seen later, a 360-day period. The eighteen months are known by the names recorded

by Landa as current among the Maya of Yucatan, and are as follows :

| | | | |
|---|---|---|---|
| 1. Pop. | 7. Yaxkin. | 13. Mac. | Uayeb (the five unlucky |
| 2. Uo. | 8. Mol. | 14. Kankin. | days). |
| 3. Zip. | 9. Chen. | 15. Muan. | |
| 4. Zotz. | 10. Yax. | 16. Pax. | |
| 5. Tzec. | 11. Zac. | 17. Kayab. | |
| 6. Xul. | 12. Ceh. | 18. Cumhu. | |

Fig. 2 shows the month-signs as they occur upon the monuments.

In recording a definite day, the Maya usually gave not only its sign and accompanying number, which fixed its position in the Tonalamatl, but also the month in which it occurred, together with a numeral which showed its position in that month. For example, 4 Ahau, 8 Cumhu, just as we should write, Wednesday, 13th January. The two methods are parallel ; the word Wednesday determines the position of the day in our 7-day period, just as 4 Ahau fixes it in the 260-day period of the Maya ; similarly, 13th January determines its position in our solar year, just as 8 Cumhu in the solar year of the Maya. But there is a difference between the two systems in the numbering of the days of the month. The days of our months are numbered from 1 to 31 (or 30, as the case may be). Each Maya month was the same length, twenty days, but the days were numbered from 0 to 19. This fact introduces an important point which must continually be borne in mind throughout any investigation into Maya chronology. In reckoning a count of days, the Maya regarded only elapsed time. Such a date as 0 Cumhu meant that the month Kayab was over, but that the first day of Cumhu was not yet complete. Their system finds its parallel in our system of reckoning time by the clock ; we write 10.30, 10.45, and so on, expressing the time in terms of the last complete hour and minute. Consequently, in a 24-hour time-table we can get such expressions as 0.15, meaning fifteen minutes of elapsed time in the *first* hour. In the same way, a man, once his forty-third birthday has passed, is in his forty-fourth year, but he generally gives his age as forty-three.

### *The Calendar-round*

Now, since the day-signs ran in a continuous circle of twenty, and there were twenty days in each month, it follows that each month of a given year commenced with the same day-sign ; further, that each day-sign occupied the same position in each month. Had it not been for the five unlucky Uayeb-days at the end of the year, the position of the day-signs would have been constant year after year. But the effect of those five extra

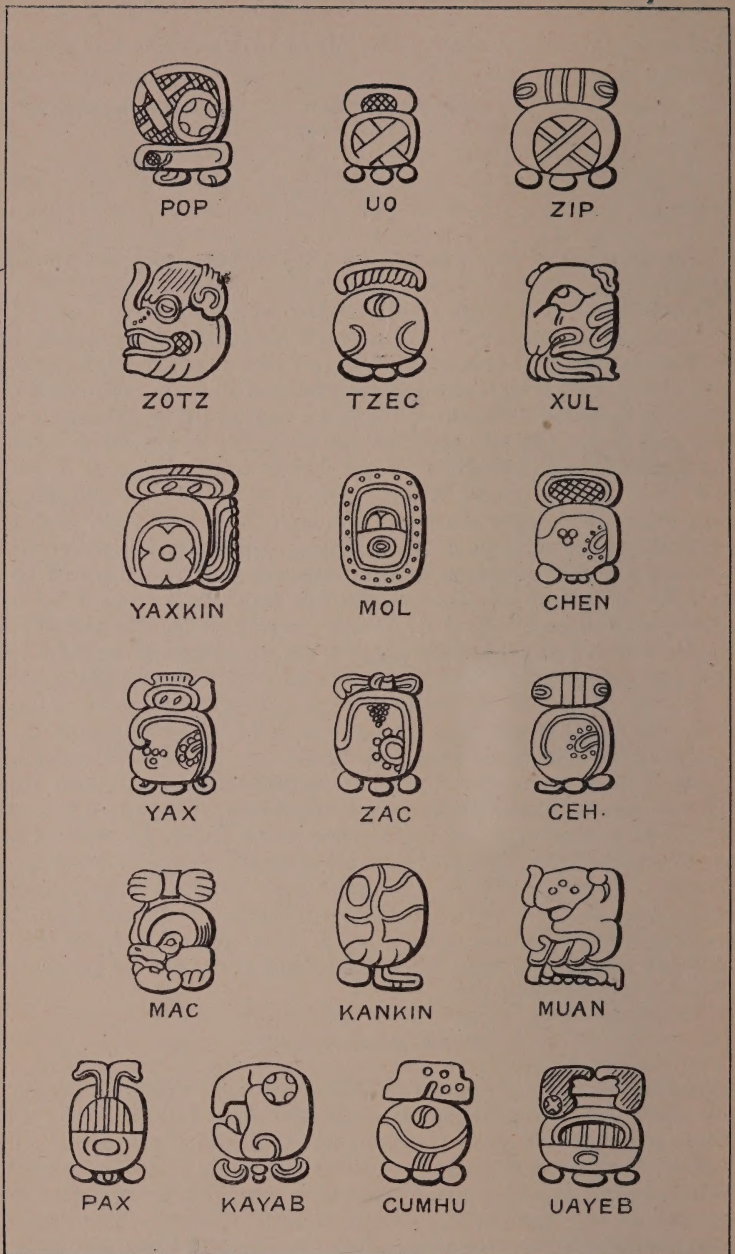



FIG. 2. Maya Month-Signs.

days was to shift each day-sign five places backward in the month in each successive year. Consequently each year (and each month of that year) began with a day-sign five days later than the previous year. But since five can be divided into twenty four times without remainder, it follows that only four day-signs occurred as the initial days of Maya years, and further, that each day-sign could only occupy four positions in each month. Those positions were as follows :

| 0,5,10,15 | 1,6,11,16 | 2,7,12,17 | 3,8,13,18 | 4,9,14,19 |
|---|---|---|---|---|
| Ik | Akbal | Kan | Chicchan | Cimi |
| Manik | Lamat | Muluc | Oc | Chuen |
| Eb | Ben | Ix | Men | Cib |
| Caban | Eznab | Cauac | Ahau | Imix |

This fact is useful in the deciphering of Maya inscriptions, since in cases where the day-sign or month-numeral is obscure, the choice is in each case limited to four. Further, where, as occasionally happens, a day-sign is followed by a month-date containing a numeral which is impossible, it is fair to assume a mistake on the part of the early sculptor.

It is worth while mentioning here that, while the initial days of the year fell, in the period of the Maya monuments, upon the signs Ik, Manik, Eb, and Caban, in Mexico in Aztec times they fell upon the signs Calli, Tochtli, Acatl, and Tecpatl, which correspond to Akbal, Lamat, Ben, and Eznab.

But if the day-signs returned to their same positions every fourth year, it was not so with their accompanying numerals. Thirteen divides into 365 with 1 as remainder ; hence each year began with a day-sign of which the accompanying numeral was one more than the year previous. Thus, as New Year's Days, 1 Ik was followed by 2 Manik, 3 Eb, 4 Caban, 5 Ik, &c. ; and, since the highest common factor of 4 and 13 is 1, it follows that $4 \times 13 = 52$ years must pass before a given day-sign with its numeral could recur in a given position in any month. This period of 52 years, or 18,980 days, is known as a Calendar-round, and when a day-and-month date, such as 4 Ahau, 8 Cumhu, is given, the position of that day is determined within a period of 52 years. The 52-year epoch is known as the ' Lesser Cycle ' of the Aztec of Mexico, and was the longest period within which, according to their computation, a day could be fixed. Their ' Greater Cycle ' was a period of 104 years, which brought the 365-day year count into relation with the synodical revolution of the planet Venus, but during that epoch their time-count had revolved twice, and they had no means of differentiating between the two revolutions. The Maya system of time-computation went farther.

### *The Long Count*

So far discussion has been limited to the Tonalamatl (or 260-day period), the Haab (or 365-day year), and the Calendar-round; it is now necessary to approach the question of the numerical system current amongst the Maya. For ordinary reckoning that system was not, as ours, decimal, but vigesimal. When we set down a series of figures with the intention of expressing a number, such as 265, we know that the numeral occupying the position of 6 has ten times the value of that occupying the position of 5; and that the numeral occupying the position of 2 has ten times the value of that occupying the position of 6. Among the Maya, a similar complex of numerals would have meant that the figure in the place of 6 had twenty times the value of that in the place of 5, and that in the place of 2 had twenty times the value of that in the place of 6. In fact, to the Maya, 2.6.5 would mean $5+(6\times20)+(2\times20\times20)$, or 925, according to our method. But, in reckoning time, their vigesimal system contained one modification. To take the same number, 265, a figure in the position of 6 had twenty times the value of one in the position of 5, but a figure in the position of 2 had only eighteen times the value of one in the position of 6. A figure in the position of 2, therefore, represented a number of periods of $20\times18=360$ days, and was therefore equal to the number of days in the eighteen Maya months apart from the five Uayeb days which approximated their year to solar time. 2.6.5 therefore, as a time-count, would represent 845 days. This furnishes additional evidence that the five Uayeb days were an afterthought, and that the first attempt of the Maya to compute the solar year was based upon a 360-day period. The figures in the third position constituted the sole irregularity in the dating system; apart from them, the vigesimal system prevailed and each figure had a value twenty times that of the one immediately below it.

In a Maya time-count, it must be remembered, the unit was the single day, and any complex numeral represented a sum of days grouped in periods corresponding to the numerical system above described. The name for a day was *Kin* (meaning also 'sun'), and the numeral expressing the number of Kin occupied the position of our 'units'. 20 Kin composed a *Uinal* (and thus corresponded to the Maya 'month'), and the numeral expressing the number of Uinal occupied the position of our 'tens'. 18 Uinal composed a *Tun* (which was therefore a period of 360 days, and corresponded to what was probably the original Maya solar year), occupying the position of our 'hundreds'. 20 Tun made a *Katun*, expressed by a numeral in the position of our 'thousands'; and 20 Katun composed a *Cycle* (the native name is unknown),

expressed by a numeral occupying the position of our ' tens of thousands '.

We have therefore this progression :

| | | | |
|---|---|---|---|
| Kin | | = | 1 day |
| Uinal | | = | 20 days |
| Tun | $= 18 \times 20$ | = | 360 days |
| Katun | $= 20 \times 18 \times 20$ | = | 7,200 days |
| Cycle | $= 20 \times 20 \times 18 \times 20$ | = | 144,000 days |

Consequently, a Maya day-count, expressed in a Maya ' Initial Series ' (this phrase is explained later), in the terms 9 Cycles, 14 Katun, 19 Tun, 8 Uinal, 0 Kin (usually written for convenience as 9.14.19.8.0), as on Stela A of Copan (of which a complete cast is exhibited, labelled III, in the south-east corner of the room), is worked out as follows :

| | | |
|---|---|---|
| $9 \times$ | 144,000 = | 1,296,000 |
| $14 \times$ | 7,200 = | 100,800 |
| $19 \times$ | 360 = | 6,840 |
| $8 \times$ | 20 = | 160 |
| $0 \times$ | 1 = | 0 |
| | | 1,403,800 |

a total of just under 3,846 of our solar years with their recurrent ' leap-year ' days.

This was the so-called ' Long Count ' of the Maya, and such an Initial Series was invariably followed by a day- and month-sign with their accompanying numerals. Thus, in the instance of the particular inscription cited, the count is followed by the Calendar-round date 12 Ahau, 18 Cumhu. Here arises a fact of the greatest significance. If the number of days expressed in the ' Long Count ', viz. 1,403,800, be reckoned *backwards* from the Calendar-round date 12 Ahau, 18 Cumhu, the Calendar-round date 4 Ahau, 8 Cumhu is reached. Now it is a fact that every Calendar-round date (with one or two negligible exceptions, which can be explained on other grounds), preceded by an ' Initial Series ', is, by means of that series, brought into relation with that same day 4 Ahau, 8 Cumhu. This means that the Maya chronological system was reckoned from a certain day, 4 Ahau, 8 Cumhu, far back in the past, which occupied, in their time-count, the same position as the birth of Christ in ours. The words ' far back in the past ' are written advisedly, since no date is found on Maya monuments which can bear any historical significance, earlier than the second half of the 9th Cycle, or over 3,430 years from the day 4 Ahau, 8 Cumhu, which appears to have formed the starting-point of Maya historical

chronology. Initial dates in the 2nd Cycle are found at Palenque (a late site) it is true (see the slabs in cases 1–6), but these are carried on by further calculations beyond the close of the 9th Cycle. It cannot be doubted but that centuries went to the evolution of the cultural efflorescence represented by the architectural remains and culture of the Maya, but it is very difficult to believe that the starting-point of their chronology was not an artificial or mythological date, the result of later researches conducted with the intention of finding some date in the past which provided the point of coincidence of a number of different numerical series.[1]

The Maya system of recording dates enabled them to fix the position of a given day within certain given periods. A day-sign, with its attached numeral, fixed the position of a day within a period of 260 days (i. e. 260 days must pass before a repetition of the same composite date). If the month-sign and numeral was added, the day was fixed within a period of 52 years. If the number of the Tun was given, within a period of 936 years. If the Katun, within a period of 18,720 years. If the Cycle also, within a period of 374,400 years. Such a system was a truly remarkable creation, and bears witness to the high level of Maya culture. It even went further than this. The manuscript preserved at Dresden, which is the oldest of the few surviving written records, shows clearly that an even higher term than the Cycle was used in advanced calculation. This we call the Great-Cycle, and consisted of 20 Cycles, or 2,880,000 days, a period of over $7\frac{1}{2}$ millenniums. As regards the monuments, it is possible, but by no means certain, that a glyph indicating the Great-Cycle period occurs on Stela N. at Copan (see cast in wall-case 19 and p. 66). More than that, a glyph which has been conjectured to represent a Great-Great-Cycle (i. e. a period of 20 Great-Cycles) is found on Stela C at Copan (see wall-case 24 and p. 69), on the tablet of the 'Temple of the Inscriptions' at Palenque, and on Stela 10 at Tikal. However, it is quite possible that the glyphs at the first two sites have another interpretation, and it is best to relegate them to a 'suspense account' until our study of Maya hieroglyphs is more advanced. The Tikal inscription is even more surprising. It appears to give a date extending over nine terms, of which the highest might be styled a Great-Great-Great-Great-Cycle, i. e. within a chronological system covering over five million years. In spite of Professor Morley's able discussion of these extended time-counts (Bulletin 57 of the Bureau of American

[1] This point of view has been ably enforced by Mr. R. C. E. Long in *Man*, 1918, 70, and furnishes important evidence in regard to the question of the correlation of the Maya system of dating with European time, to which reference is made later.

Ethnology), it is best to suspend judgement upon them until further progress has been made in the deciphering of Maya inscriptions.

To return to the Great-Cycle. It has been stated that the vast majority of Maya dates are reckoned from a certain day 4 Ahau, 8 Cumhu. On three monuments at three separate sites (Quiriguá, Palenque, and Piedras Negras : the particular inscriptions are not represented in the present collection of casts) this date is fixed as the terminal day of a cycle distinguished by the numeral 13. This fact inspired the theory that the Great-Cycle was composed of 13 Cycles. Against this is the evidence of the Dresden MS., which shows that the Great-Cycle was composed of 20 Cycles. Moreover, if the Great-Cycle had been limited to a count of 13 Cycles, the very term ' 13th Cycle ' was an impossibility according to the Maya system. The 20-unit periods were numbered from 0 to 19 ; the one 18-unit period, the Tun, was numbered from 0 to 17. On this analogy the units composing a 13-unit period should be numbered from 0 to 12, and, consequently, a sum of 13 of its units would have been expressed by an addition of 1 to its own numerical coefficient. Professor Morley has put forward an ingenious solution for the problem. He considers that the Great-Cycle period was composed of 20 Cycles, but that the Cycles individually were accompanied by the numerals 1 to 13, just as the day-signs. Thus it happened that the day 4 Ahau, 8 Cumhu concluded a ' Cycle 13 ', which happened to be the 20th Cycle of a Great-Cycle. In the present state of our knowledge, this theory may be considered to hold the field. Nevertheless, it is quite possible that the glyphs which appear to express ' end of Cycle 13 ' may bear another interpretation.

*Summary*

To summarize the elements of Maya chronology which may be regarded as fixed beyond dispute, we have :

(1) A series of 20 day-signs (see fig. 1), which, in combination with the numerals 1 to 13 produced a ' round ' of 260 days, the so-called Tonalamatl.

(2) A series of 18 month-signs (see fig. 2), each representing a period of 20 days, followed by a sign representing a period of five days. This is the year of 365 days, or Haab.

(3) A period produced by the combination of (1) and (2), in which each day-sign with its numeral is fixed as falling on a definite day of a definite month. This the so-called ' Calendar-round ' of 18,980 days, or 52 years of 365 days each. It is inherently probable that the Maya possessed a glyph designating this ' Calendar-round period ', but this glyph has not as yet been discovered.

(4) The so-called ' Long Count ', which, by means of a complex number expressed according to a system which is in the main, but not entirely, vigesimal, established the position of

Fig. 3. Maya Period-Signs.

the combined day- and month-date in relation to a certain day 4 Ahau, 8 Cumhu, which, in the vast majority of the inscriptions, figures as the starting-point of Maya chronology.

With regard to (4). It has been shown that the ' Long Count ' is expressed in various periods called ' Cycle ' (144,000 days), ' Katun ' (7,200 days), ' Tun ' (360 days), ' Uinal ' (20 days),

and 'Kin' (1 day). For these periods the Maya had three separate series of glyphs, the third of which was in fact a variety of the second. The first series consists of what are known as 'Normal signs', and a typical example is shown in fig. 3 (right). The second consists of the so-called 'Face-signs', illustrated in fig. 3 (left). Of the latter, the Cycle is a bird's head, of which the lower mandible is formed by a hand; the Katun is a bird's head, often with a kind of 'fang' projecting from the corner of the mouth. The Tun is a grotesque head, sometimes bird-like, sometimes more or less human, but almost invariably with a skeleton lower jaw. The Uinal is the head, probably of a frog, with a pronounced curl issuing from the mouth-corner. The Kin is the head of the Sun-god, sometimes with a flamboyant 'tail' attached. The third series is constituted by the so-called 'Full-figure' glyphs (see Wall-case 20 and fig. 6). As the name implies, the periods are expressed by entire figures, of which the heads are portrayed with the same main characteristics as the last.

These four points may be regarded as certain. But, for the sake of completeness, as far as the present exhibition is concerned, the problematical higher periods, the 'Great-Cycle' and 'Great-Great-Cycle', may be mentioned here.

The glyph, for which the interpretation of 'Great-Cycle' (or period of 2,880,000 days) has been suggested, occurs on Stela N at Copan (Wall-case 19 and p. 66). This is shown in fig. 7 *a*. The glyph, assumed, on similar conjectural grounds, to represent the 'Great-Great-Cycle' (or period of 57,600,000 days) is found twice on Stela C at the same site (Wall-case 24 and p. 69), and is illustrated in fig. 7 *b*. Emphasis must again be laid upon the point that these interpretations lie outside the region of established fact, and that the glyphs in question may be proved, by further research, to have a different explanation.

### *Numerals*

So far the numerical system of the Maya has been explained, but no reference has been made to the method by which numerals were expressed in the monumental inscriptions. There were in fact three series of glyphs by which numerals were indicated, corresponding to the 'Normal', 'Face', and 'Figure' of the period-signs. In the 'Normal' numerals, 5 was expressed by a bar, units below 5, or above one or more multiples of 5, by single dots. Owing to the peculiarities of the Maya system of dating, the highest numeral found is 19, expressed by three bars and four dots. Now the Maya, in general, regarded the vacant space as an artistic fault, and in cases where the dots were few (as in numerals such as 1, 2, 6, 7, 11, &c.) they supplemented the significant dots with one or more crescents,

crosses, or dots distinguishable by their size, shape, or engraved ornament from those which were purely numerical. Reference to the illustration fig. 4 will afford the best explanation.[1] This fact, however, introduces a difficulty into the interpretation of Maya inscriptions. In the case of a monument which has suffered from severe weathering it is often difficult, or even impossible, to decide whether a partially obliterated numeral is, for instance, 11, 12, or 13; and in such cases the interpretation depends upon the 'internal evidence' of the inscription, or upon pure conjecture based upon inherent probability. The figure 0, which occurs as a coefficient to month-signs and the various periods of the 'Long Count' (see p. 13), was expressed by one of the signs shown in fig. 7*g–h*. Occasionally the numeral 1 is expressed by a conventional thumb (fig. 7*f*.) Instances are not common, and this is a fortunate fact, since a weathered 'thumb'-sign is almost indistinguishable from a 'bar' signifying 5.

Besides the dot-and-bar numerals, the Maya also used a series of heads of gods or mythological beings to express the

Fig. 4. 'Normal' Numerals.
*a*—6, *b*—11, *c*—12, *d*—16, *e*—17.

numbers 0 to 19. Typical examples, drawn where possible from the casts exhibited, are illustrated in fig. 5, but these head-numerals exhibit considerable variation. Their distinctive features appear to be as follows:

1. wears a multiple forehead ornament.
2. occurs only once in the monuments; possibly the oval in the forehead is the distinctive feature.
3. wears a banded head-dress.
4. has a staring eye, more or less quadrangular in form, and a 'fang' projecting from the corner of the mouth.
5. wears the Tun-sign as head-dress.
6. has, apparently, a stone axe in the pupil of its eye.
7. occurs only once; and is perhaps distinguished by a scroll projecting from the forehead and curving downward under the eye.
8. wears a simple forehead ornament, usually in the form of a spiral.
9. has a series of dots on the cheek at the corner of the mouth and is often bearded.
10. is the head of the Death-god, and shows a fleshless lower jaw.

[1] The slabs at Palenque, where these space-filling dots do not always occur, constitute an exception.

Fig. 5. Face Numerals.

The heads used to designate the numbers 11 to 19 are similar in their main characteristics to those employed for 1 to 9 respectively, except for the fact that they are drawn with a fleshless jaw, the symbol of the head representing 10. 0 is expressed by a head of which the lower jaw is formed by an open hand.

The ' Full-figure ' numerals, such as may be seen in the elaborate inscriptions carved upon Animal B at Quiriguá (Wall-cases 15–18 and p. 60), Stela D, also at Quiriguá (on the wall each side of the northern doorway and p. 58), and Stela D at Copan (Wall-case 20 and fig. 6), differ from the ' face-numerals ' only in the fact that the heads, which are the significant element, have bodies attached.

### *Other Glyphs*

To return, for a moment, to period-signs; there are two important glyphs, one identified by Goodman, the other, more recently, by Morley. These are known by the names ' Lahuntun ' and ' Hotun ', meaning ' 10-Tun ' and ' 5-Tun ' respectively. As the names indicate, the Lahuntun glyph is used to indicate a period of 10 Tuns = $\frac{1}{2}$ Katun = 3,600 days. The Hotun glyph expresses a period of 5 Tuns = $\frac{1}{4}$ Katun = 1,800 days. These glyphs are shown in fig. 7 *c* and *d*. The Lahuntun glyph consists of the ' cross patée ' sign, cut in half by a bar, with a superfix added. This ' cross patée ', as mentioned above, stands for 0 (see fig. 7 *g*). Now 0 is equivalent to a full count, i.e. 20. (From this point of view, in our decimal system 0 is equivalent to 10.) Consequently this sign, cut in half by a bar, signifies half the full count of Tuns requisite to form a complete Katun, i.e. 10 Tuns. Instances of its occurrence on the casts exhibited will be found on pp. 33, 61, 63, 65, 66. In the Hotun glyph, the Tun element is represented by the so-called ' winged Cauac ' sign, while the 5 element is represented normally, as a bar.

Where these two glyphs occur, they invariably signify that a certain day-and-month date, recently expressed, concluded a 10-Tun or 5-Tun period; and this fact is indicated either by the inclusion in the glyph-complex, or by the association, in the form of a separate glyph, of a sign known as an ' Ending-sign '. Such ending-signs are used, not only in conjunction with Lahuntun and Hotun glyphs, but also with glyphs denoting other periods in the Long Count, such as the Cycle, Katun, and Tun. They assume several forms; a hand, a hand with a ' tassel ', a hand holding a rod terminating in a ' tassel ', a conventionalized ' dragon ' head, and a flattened semilunar sign (fig. 7 *j–l*), enclosing dots, probably derived from the last mentioned. The fact that the ' hand-and-tassel ', with or without the ' rod ', is

Fig. 6. Full-figure Numerals.

indisputably employed as an ending-sign, is one of the reasons which suggest that the so-called 'Great-Great-Cycle' glyph (see p. 18) may be capable of explanation on other grounds.

One more glyph demands especial mention, the glyph which represented the planet Venus. Its fullest form is shown in fig. 7 *e*. It is clear that the Maya, like the later Aztec, observed the synodical revolution of this planet, i.e. the period elapsing between its successive reappearances above the horizon as morning star. This period embraces almost exactly 584 days, and therefore five of its revolutions coincide with eight solar years of 365 days. Now 20, the number of the day-signs, is divisible into 584 29 times with 4 as remainder. Thus every Venus-period concluded with a day-sign four days later than the

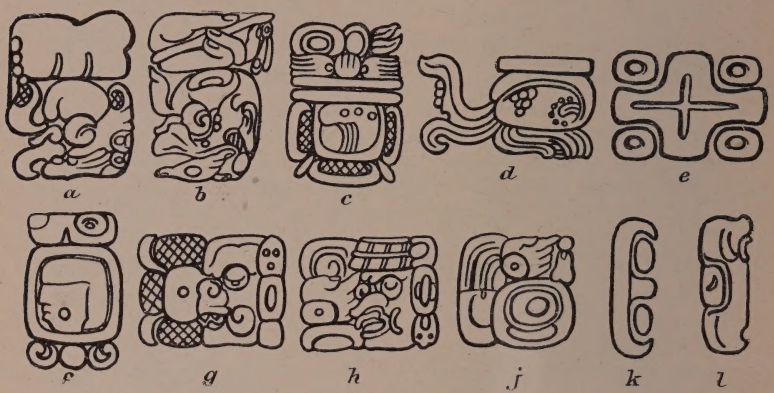



FIG. 7. Various Glyphs. *a*, 'Great-Cycle'; *b*, 'Great-Great-Cycle'; *c*, Lahuntun; *d*, Hotun; *e*, Venus-glyph; *f*, 'Thumb'-numeral; *g–j*, zero; *k–l*, 'Ending'-signs.

previous one. But, since four divides into 20 five times without remainder, it follows that only five signs could terminate a Venus-period. These were, apparently, Lamat, Eb, Cib, Ahau (the terminal day of every period in the Long Count from Cycle to Uinal), and Kan. Since the day-signs were accompanied by the numerals 1 to 13, and since 13 divides into 584 with a remainder of 12, it follows that the terminal day of each Venus-period was distinguished by a number one less than the previous. Consequently $5 \times 13 = 65$ Venus-periods must elapse before the recurrence of the same day-and-numeral as a terminating date. 65 Venus-periods = 37,960 days = 104 years of 365 days = two Calendar-rounds of 52 years each (see p. 15). Consequently, once in 104 years, the Venus Count, the Calendar-round Count, and the Year Count, coincided to a day. The observation of Venus-periods, therefore, afforded a valuable check upon year-time, and the 104-year Cycle prevailed in later

times among the Mexicans as their ' Greater Cycle ', the highest unit of their chronology (see p. 15).

It is a fair assumption that acute observers such as the Maya took note also of the revolutions of other planets, and their script includes a number of glyphs which, on presumptive evidence, may be regarded as planetary signs. But at present attempts at interpretation have not produced results which can be regarded as certain.

Besides star-observation, which apart from the planet Venus must be regarded as a problematical question, there is no doubt that the Maya paid attention to the phases of the moon. In this connexion there is an extremely interesting series of glyphs, occurring in most inscriptions which commence with an ' Initial Series ', which presents a very attractive problem to students. This is the so-called ' Supplementary Series ', which normally, though not invariably, occupies a position between the day-sign and the month-sign terminating an Initial Series. Supplementary Series consist of eight individually recognizable glyphs, five of which appear in over 70 per cent. of the known instances. One of them, the so-called Glyph A, which includes the sign representing the moon and is always accompanied by the numeral 9 or 10, occurs in no less than 97 per cent. It is highly probable that, besides phases of the moon, this series refers to eclipses. When elucidated, it is more than possible that the Supplementary Series will afford evidence by means of which Maya chronology can be correlated accurately with our own time, and the intensive study of these glyphs is recommended to those who are interested in Maya problems.[1]

### *The Katun Count*

So far an attempt has been made to describe in detail the Tonalamatl Count, the Calendar-round, and the Long Count of the Maya. It remains now to give a short account of a later and simplified development of their system of time-reckoning which may be called the Katun Count.

To judge from the surviving monuments, the Long-Count system prevailed over a period rather longer than a Cycle. The vast majority of inscriptions which may be regarded as ' historical ' fall after the close of Cycle 9 and before the close of Cycle 10. The site of Uaxactun, undiscovered in Maudslay's day, provides the only monumental date before the close of the 9th Cycle, 8.14.10.13.15. Dates in the Long Count after the end of Cycle 10 are very few, the most important being those at Chichén Itzá, in the extreme North-east, and at Quen Santo

[1] This ' Supplementary Series ' cannot be discussed fully here; inquirers may be referred to Morley's *Copan*, p. 551).

in the extreme West, of the Maya area. These two dates are significant as regards the spread of Maya culture, and reference will be made to them later. At the present moment the point to be noticed is, that about the close of Cycle 10 the 'Long Count' was abandoned in favour of a simpler, though less comprehensive, system. Signs of the change are not wanting before the close of the 10th Cycle. In the new system, the Cycle was dropped entirely, and time was reckoned by the Katun, identified by its concluding day. Now every Katun ended on a day Ahau, but with a different numeral. The Katun-period of 7,200 days is divisible by the number 13 with 11 as remainder. Consequently successive Katuns terminate with the day-sign Ahau accompanied by a numeral less by two than the preceding. Katun 1 Ahau was succeeded by 12 Ahau, 10 Ahau, 8 Ahau, and so forth, until, after the passage of 13 Katuns, Katun 1 Ahau recurred. The Katun represented a period of a little less than 20 years; and the elapsed time included in a Katun-round included over 256 years, sufficient for the practical purposes of living generations. This is the system which the Spanish conquerors found surviving amongst the Maya of Yucatan, and provides the basis of the chronology in the Yucatec tribal history, recorded in the so-called 'Books of Chilan Balam', which contain the traditions of the Tutul-Xiu family, rulers of Mani. The change from the Long Count to the Katun Count affords important evidence regarding the spread of Maya culture. Dates in the Long Count after the close of the 10th Cycle are rare, and confined for the most part to a group of settlements in the East of the Central Maya region. But the two latest occur at sites, which were not only of relatively very recent foundation, but are as remote one from the other as any two Maya sites known. These are Chichén Itzá, in the North of Yucatan, and Quen Santo far to the South and West, on the Guatemalan side of the Chiapas boundary. The Chichén Itzá date is 10.2.9.1.9, 9 Muluc, 7 Zac. The Quen Santo dates are 10.2.5.0.0, 9 Ahau, 18 Yax, and 10.2.10.0.0, 2 Ahau, 13 Chen. These are the latest Long-Count dates known, and the position of the sites at which they were found, together with the rather abrupt cessation of all dated inscriptions in the Central Maya area, seems to imply that about this period there was a general emigration from the latter in the directions North and West. This emigration, and the consequent abandonment of the old sites, is confirmed by evidence which cannot be given in full here. The Books of Chilan Balam chronicle the migration of the Tutul Xiu to the region of Bakhalal (L. Balcalar), and so to Chichén Itzá, and furnish an account, prejudiced no doubt, but nevertheless an account, of the development and history of Maya culture in Yucatan until after the coming of the Spaniards. For the

region West and North-west of the Maya cradleland there exist no documents of similar precision. But from archaeological evidence it would appear that Maya culture spread by way of Oaxaca up to the Valley of Mexico. Here, fostered by the Toltec, it took root and flourished with such vigour, that, at a still later period, it had a profound influence upon the arts and crafts of the Totonac of Vera Cruz, and penetrated even to Chichén Itzá in Yucatan, where the ornamentation of the latest buildings is in the Toltec style.

FIG. 8. Inscription on Altar S.

*Examples of Glyph-reading*

To return to the monuments themselves; it will be as well at this point to give an illustration of the interpretation of an inscription in the light of present knowledge. Altar S at Copan (see the cast exhibited in Wall-case 19 and fig. 8) furnishes an excellent example of an easy and straightforward record. But, before proceeding to a discussion of the inscription itself, a word must be said with regard to the accepted method by which

reference is made to an individual glyph in a given text. Each Maya glyph is arranged to occupy an approximately square space, either alone or in combination with another glyph or other glyphs. These glyph-blocks are disposed symmetrically in columns, and the columns are read in pairs downwards. The vertical columns are indicated, from left to right, by the letters A, B, C, &c. ; the transverse rows, from the top downwards, by the numbers 1, 2, 3, &c. By a combination of letter and numeral, e. g. A2, C6, the position of a given glyph-block can be accurately fixed. In cases where a glyph-block is composed of two glyphs, subsidiary lower-case letters are added to indicate the two halves. Thus A2a refers to the glyph which occupies the left-hand section of the glyph-block A2 ; C6b indicates the glyph which occupies the right-hand section of the glyph-block C6. An Introductory glyph often occupies four times the space of any other glyph-block in a given inscription, and is therefore referred to as A1–B2. As remarked above, in a long inscription the columns are read in pairs, as follows : A1, B1, A2, B2, A3, B3, and so to the foot of columns A and B ; next follow C1, D1, C2, D2, &c.

To return to Altar S, since the glyph-blocks are disposed in a single transverse row, they are to be read straight on from left to right.

Glyph A1 is an Introductory glyph, indicating that an Initial Date is to follow. B1 is composed of the numeral 9 and the Cycle-sign (=9 Cycles). C1a, in similar fashion, expresses 15 Katuns ; C1b, 0 Tuns. Passing to the next face of the altar, we find, in D1a, 0 Uinals ; and in D1b, 0 Kins. E1a is evidently the Tonalamatl date 4 Ahau ; and E1b is equally clearly the month-date 13 Yax. So far we have the Long-Count date 9.15.0.0.0, 4 Ahau, 13 Yax. The period of days involved is the following :

| | | | |
|---|---|---|---|
| 9 Cycles | =( 9 × | 144,000) = | 1,296,000 days |
| 15 Katuns | =(15 × | 7,200) = | 108,000 days |
| 0 Tuns | =( 0 × | 360) = | 0 days |
| 0 Uinals | =( 0 × | 20) = | 0 days |
| 0 Kins | =( 0 × | 1) = | 0 days |
| | | | 1,404,000 days |

Calculation will show that 1,404,000 days reckoned backwards in the continuous Calendar-round from 4 Ahau, 13 Yax, leads to 4 Ahau, 8 Cumhu, which, as remarked above, stands as the starting-point of Maya chronology. To proceed, the elements in glyph-block F1 are indecipherable at present, but G1a unmistakably expresses ' 5 Katuns '. H1 shows the Calendar-round date 7 Ahau, 18 Zip, and I1a fixes it as the terminal day of the 10th Cycle (the glyph shows ' 10 Cycles ' with the ' ending-

sign ' superposed). Adding the distance-number ' 5 Katuns ' to the initial date, we have :

9.15.0 0.0, 4 Ahau, 13 Yax.
5.0.0.0

10.0.0.0.0, 7 Ahau, 18 Zip, end of Cycle 10.

The fact that a period of 5 Katuns ($5 \times 7{,}200 = 36{,}000$ days), reckoned in the Calendar-round from 4 Ahau, 13 Yax, does in fact reach 7 Ahau, 18 Zip, can be proved by experiment. The only other recognizable glyph in the inscription is contained in the lower half of J1a, which appears to show a variant of the sign representing the planet Venus. Possibly the end of the 10th Cycle marked a phase in the synodical revolution of this planet. The question next arises, which of these two dates refers to the erection of the monument. Careful research has shown that, in cases where calculations are made from an initial date to dates later in the Maya calendar, it is usually the *latest* expressed date which refers to the monument. But the rule is not invariable, and the question of the artistic style of the monument, as compared with others of the same site, and its position in an architectural complex, provide useful, though not infallible, aids to interpretation. In the present instance, the Initial date probably refers to the dedication of the altar, the rest of the calculation merely recording the distance in time from the close of the 10th Cycle, a date so important in Maya chronology as the termination of one of their longest time periods, that it must have occupied the attention of the Maya for many years ahead.

An illustration of a longer inscription is afforded by Stela F at Quiriguá (see Wall-cases 11–13, Pl. III and fig. 9). The inscription commences on the west side, with an initial date, the numerals of which are expressed in the ' Face ' series. It reads as follows :

| | | | |
|---|---|---|---|
| A1–B2 | Introductory glyph | | |
| A3 | 9 Cycles | = | 1,296,000 days |
| B3 | 14 Katuns | = | 100,800 days |
| A4 | 13 Tuns | = | 4,680 days |
| B4 | 4 Uinals | = | 800 days |
| A5 | 17 Kins | = | 17 days |
| | | | 1,402,297 days |

This period, counted from the day 4 Ahau, 8 Cumhu, will be found to reach 12 Caban, 5 Kayab, and this Calendar-round date is in fact recorded in B5 and A6. In this case, the month-sign follows immediately upon the day-sign, but in the majority

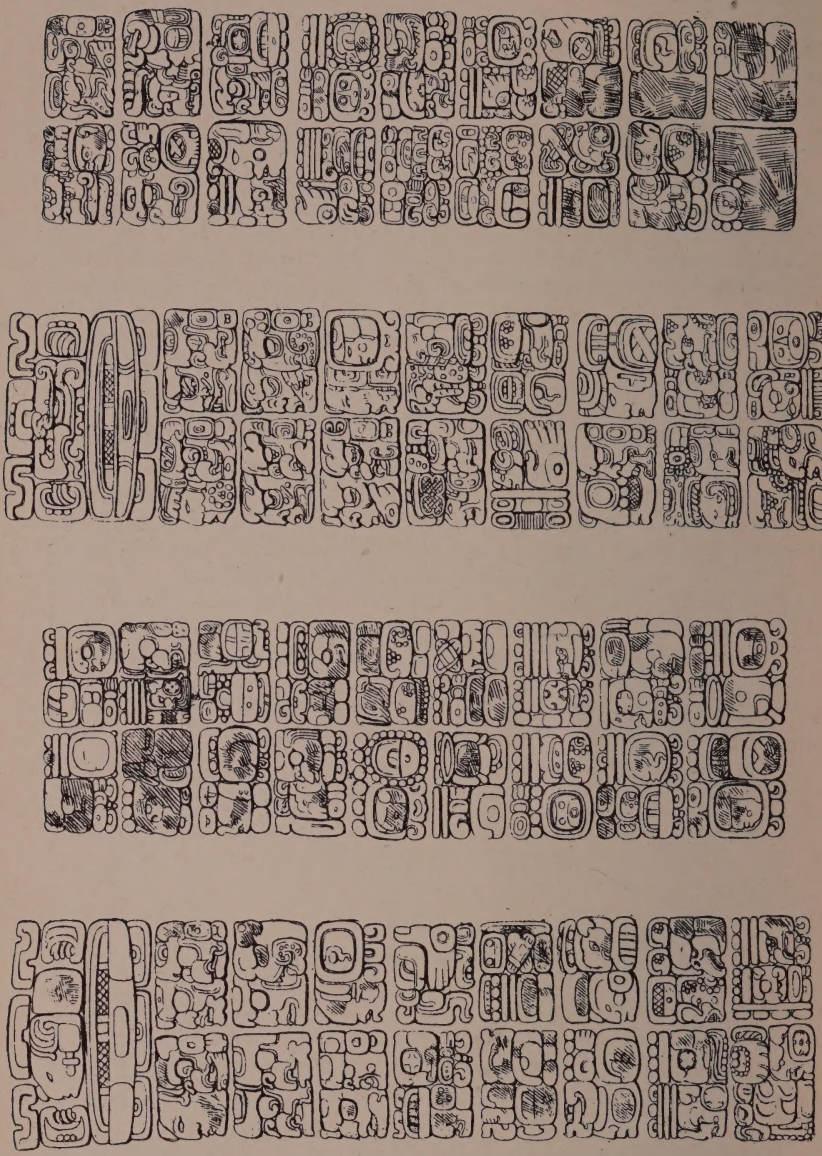


Fig. 9. Inscription on Stela F, Quiriguá.

of cases where inscriptions of this class are concerned, the two are separated by a series of from five to eight constantly recurring glyphs. These glyphs are known as the 'Supplementary Series' (see p. 27).

So far, we have recorded the Long Count date 9.14.13.4.17, 12 Caban, 5 Kayab. The next decipherable glyph-complex is B10. This is a so-called 'Secondary Series' or 'Distance-number', and in normal cases, is to be added to (or sometimes subtracted from) the last expressed date in order to introduce another date. Secondary Series are usually, though not invariably, expressed in the reverse order as compared with Initial dates; that is to say, the lowest unit is placed first, and the highest last. They also present another feature; in order to economize space, one or more period-glyphs may be suppressed, their numerical coefficients only being recorded. So, in the present instance, 9 Uinals and 13 Tuns can easily be read, but an additional figure, 9, can be seen on the left of the Uinal-sign. This represents 9 Kins, the Kin-glyph being omitted. We have therefore a Secondary Series of 9 Kins, 9 Uinals, and 13 Tuns, or, as it is usually expressed, 13.9.9. This should be added to the last expressed date, in this case the Initial Series:

9.14.13. 4.17, 12 Caban, 5 Kayab.
13. 9. 9

9.15. 6.14. 6

The last numerical complex will be found to reach the Calendar-round date 6 Cimi, 4 Tzec, and this date is recorded in B11b, A12a. The next decipherable glyphs are in A15, where the Calendar-round date 3 Ahau, 3 Mol, is unmistakable. No Secondary Series leads to it, but the glyph A16 marks it as the end of a Lahuntun (10-Tun) period. The nearest Lahuntun is 9.15.10.0.0, and calculation will show that this Lahuntun did in fact end on the day 3 Ahau, 3 Mol.

In A17 there is another independent Calendar-round date, 4 Ahau, 13 Yax, without any decipherable qualification. For the sake of brevity, it may be said at once that this is the terminal day of the last complete Katun (9.15.0.0.0, 4 Ahau, 13 Yax), and the introduction of the terminal day of the most recent full Katun-period is not uncommon in the inscriptions. The next four decipherable glyph-complexes must be read together, and exhibit a departure from the normal procedure, though parallels are found in other inscriptions.

(*a*) B17 and A18a present a Secondary Series, reading: 3 Kins, 13 Uinals, 16 Tuns, 1 Katun (the numeral of the last being the so-called 'thumb'-sign = 1).

This represents, in ordinary notation, 1.16.13.3.

(*b*) A18b and B18a read 12 Caban, 5 Kayab.
(*c*) A19 reads 1 Ahau (again the ' thumb '-numeral), 3 Zip.
(*d*) B19a reads ' End of a Lahuntun '.

Now, in normal cases, a Secondary Series occupies a position between the two Calendar-round dates which it brings into relation. In the present instance, calculation will show that (*b*) 12 Caban, 5 Kayab is exactly (*a*) 1.16.13.3 days before (*c*) 1 Ahau, 3 Zip. Furthermore, (*c*) 1 Ahau, 3 Zip, which is determined as the end of a Lahuntun, was in fact the concluding day of the Lahuntun 9.16.10.0.0. This fixes the position of (*b*) 12 Caban, 5 Kayab, in the Long Count, as 9.14.13.4.17.

Proceeding now to the inscription on the East side of the Stela, we find another Initial date, also including ' Face-numerals '. Here we have :

| | |
|---|---|
| A3–A5 | 9.16.10.0.0. |
| B5 and B8 | 1 Ahau, 3 Zip. |

Other day- and month-signs are recorded below, but there are no Distance-numbers and their significance cannot yet be interpreted.

The whole inscription therefore, as far as can be deciphered in the light of present knowledge, reads :

Introductory glyph.
9.14.13.4.17, 12 Caban, 5 Kayab.
13.9. 9
(leading to)
(9.15.6.14.6) 6 Cimi, 4 Tzec.
(3. 3.14)
(leading to)
(9.15.10.0.0) 3 Ahau, 3 Mol, the end of a Lahuntun, 4 Ahau, 13 Yax, being the end of the previous Katun.
1.16.13.3
(counted from)
(9.14.13.4117) 12 Caban, 5 Kayab,
(leads to)
(9.16.10.0.0) 1 Ahau, 3 Zip, the end of a Lahuntun.
9.16.10.0.0, 1 Ahau, 3 Zip (repeated as an Initial Series).

It is a fair assumption that a date expressed in the form of an ' Initial Series ' is an important date in Maya chronology. Further, that when a series of calculations brings the count to a date which is repeated in Initial-Series form, and is followed by no glyphs which, in the light of our present knowledge, can be regarded as carrying the count to a later date, that date represents the date in commemoration of which the monument was erected. With regard to the inscription which has just been interpreted in detail, it may be remarked that the date 9.14.13.4.17, 12 Caban, 5 Kayab, occurs as a starting-point for

calendrical computation on no less than four of the monuments at Quiriguá. It is quite possible, seeing that this date is the earliest of those which may be regarded as contemporary with the occupation of the site, that it may be the date of the foundation of the settlement. If that is so, the inscription is a chronological record which, commencing with a foundation-date, proceeds through dates of calendrical and ceremonial importance, to the date contemporary with the Stela. It is quite true that certain Initial inscriptions refer to dates earlier or later than the foundation-date of a 'city'; also that some concluding-dates are 'prophetic', in the sense that they record the close of an important time-period which was approaching (e. g. Altar S : see p. 31). In such cases stylistic criteria (which by themselves afford, at best, rather dubious evidence), combined with the interrelation of monuments, regarded as units of an architectural complex, afford contributory evidence of considerable value.

## The Significance of the Monuments

The double question now arises, what is the meaning of these monuments which bear elaborate calendrical calculations, and what is the possible content of those portions of the inscriptions which are as yet undecipherable? With regard to the first point : a survey of the monuments elicits the fact that, whatever the chronological starting-point of the inscription, the terminal date, in an overwhelming majority of instances, records the termination of a full Katun, the half of a Katun (i. e. 10 Tuns, the so-called 'Lahuntun' period), or the quarter of a Katun (i. e. 5 Tuns, or the so-called 'Hotun' period). Now the Books of Chilan Balam show that it was the practice of the Maya of Yucatan to commemorate the passing of the Katun by the setting up of a 'stone'. These two facts in combination provide very good evidence that the Early Maya monuments, Stelae, Altars, and even buildings (such as temples and stairways) were erected to mark the termination of certain time-periods. In the earliest times, it is possible that only Katun-terminations were thus registered; later the Lahuntun-periods. But in the years during which Maya civilization reached its apogee, it was the Hotun-period which was thus recorded. The evidence for this fact is so complete that it has been used in field-research. It has been found possible to prophesy, in cases where there was a gap in the series of Hotun-markers, that further investigation would reveal the existence of an undiscovered monument; and such prophecies have been justified by facts.

It is clear that the preservation of accurate time-records was of great importance to the Maya, and, from the evidence pro-

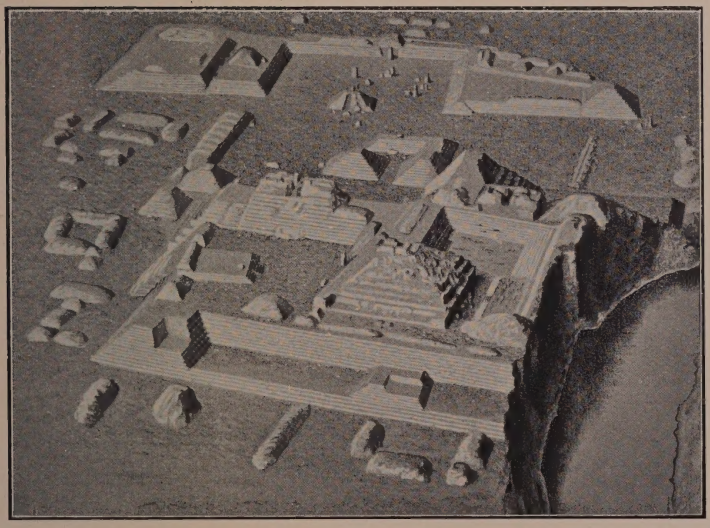
vided by the early accounts of the Maya of Yucatan and of the Mexicans, it becomes evident that this importance was religious rather than historical.

With regard to the glyphs at present undecipherable, it is quite possible that some of them may refer to historical occurrences, but it is probable that such cases are proportionately few. Some of them, to judge by comparison with the Dresden Codex, are probably the names of gods ; others almost certainly refer to certain planets and celestial phenomena, such as eclipses. Further study of the Maya language may assist in the interpretation of the script, since the glyphs appear to be, at least in part, phonetic. To give one instance : the word for ' day ' or ' sun ' was ' Kin ', and the face of the Sun-god, or the sun-disk, appears in the glyph. The sun-disk also forms an important element in the glyphs expressing the month-names ' Yaxkin ' and ' Kankin ', while the other element of the ' Yaxkin ' glyph appears in the month-sign ' Yax '.

The majority of the Stelae at such sites as Copan and Quiriguá bear on one face, sometimes on two, a colossal figure in human form, carved in relief. This figure is clad in elaborate dress and ornaments, and often bears in its arms an object known as the ' Ceremonial Bar ', with a serpent-head at either end. In some cases this object appears simply as a two-headed snake, with drooping body. Where the ' Bar ' is represented as a rigid beam, it is often divided into panels enclosing glyphs which almost certainly represent certain planets, the sun, moon, day, and night. The serpent-heads usually hold in their jaws the head of the Rain-god, or, less frequently, the Sun-god. A Maya legend relates that at the Creation four beings, known as Bacab, were placed at each of the cardinal points to support the sky. It is possible that the figures on the Stelae may represent these beings. It is certain that the cardinal points played an important rôle in Maya, as in the later Mexican, ceremonial, and that successive time-periods were associated with them alternately. The ' Bar ', then, with its celestial symbols, would represent the sky, while the close association of the snake with clouds, rain, and lightning would explain the serpent-head terminals. Sometimes the colossal figure holds a small buckler bearing the face of the Sun-god, and an axe, the haft of which is carved to represent a grotesque figure (probably that of the Rain-god), with the blade, usually of stone, projecting from the forehead. The Rain-god, being also the Thunder-god, usually bore an axe as one of his attributes, in his capacity as the god who smites, and the Bacab were included among the subsidiary rain-deities who attended the principal Rain-and-Thunder-god.

At one period in the history of the site of Quiriguá, the custom arose of marking the Katun-quarters by large blocks of stone

*a.* QUIRIGUÁ: MONOLITHIC ANIMAL P.



*b.* COPAN: RELIEF-PLAN OF THE RUIN.

carved in the form of grotesque animals instead of the ordinary Stelae. The finest of these is Animal P (Pl. II *a*), a cast of which is exhibited in the centre of the room (a photograph of Animal B is shown in Wall-case 18). The peculiarity of these monsters is that they are furnished with a head at each end of the body. The head in front usually holds in its jaws the head or figure of the Sun- or Sky-god, while the head at the tail is shown with the skeleton jaw typical of the Death-god, but distinguished by emblems usually accompanying the Sun-god (fig. 10). The Ancient Central Americans symbolized the earth as a gigantic monster, something like an alligator, which swallowed the sun every day at sunset. These 'Animals' are probably representations of

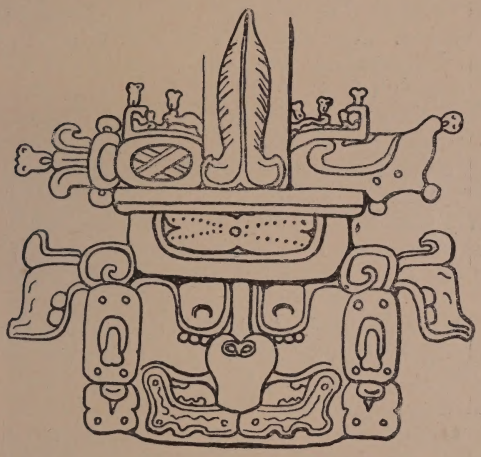


FIG. 10. The Rear Head of the Earth-Monster.

this Earth-monster, and the head appearing in the place of the tail, with the combined attributes of the Death-god and the Sun-god, typifies the Sun-god in the Underworld, through which he was supposed to pass during the night. An excellent example of this Earth-monster is seen on one side of Altar D′ at Copan (see cast in Wall-case 21–2).

## MAYA GODS

The reports of Landa and Cogolludo concerning the religion of the Maya of Yucatan, the study of Mexican religion, and of the divine figures in the Dresden Codex, have shed considerable light upon the gods worshipped by the builders of the earlier monuments. The principal gods, as depicted in the Dresden Codex, are shown in fig. 11, accompanied by the letters allotted

to them, for convenience of reference, by present-day archaeologists.

God A is the Death-god, shown as a skeleton. On the monuments he appears as a skull, or at least with a fleshless lower jaw. This head is used as the face-variant of the numeral 10. A startling representation of this head is carved upon Altar R from Copan (Pl. V).

God B appears in the manuscripts and on the monuments more often than any other deity. A snout-like nose is his principal characteristic, and he is frequently depicted as carrying an axe. This is the Rain-and-Thunder-god, Chac, the god of fertility, and therefore of great importance in the eyes of an agricultural people such as the Maya. His peculiar form of nose was probably suggested by the tapir, which was closely associated with the lightning. The face of this god, with its exaggerated nose, appears frequently in the ornamentation of Yucatec buildings (see photograph in Case 26), and the Mexican manuscripts portray their Rain-god, Tlaloc, with a similar trunk-like snout.

God C is probably the god of the North Star, though the identification cannot be regarded as absolutely proved.

God D is Itzamna, the all-powerful Sky-god, corresponding to the Mexican Tezcatlipoca and, in many respects, to the Greek Zeus. He is represented as old and toothless, with a peculiar scroll under the eye. His head also appears frequently in the glyphs.

God E is the Maize-god. This deity represented the spirit of the maize-plant, and appears to have played a rather passive rôle in the Maya pantheon. He was not the fertility-god, for this function was assumed by the Rain-god, but he typified the young crop, persecuted by the evil, and protected by the beneficent, powers. An excellent representation of his head is seen in the arms of the so-called Foliated Cross (Wall-cases 4–6) at Palenque, which in fact depicts, in conventional style, a maize-plant supported on the head of the Rain-and-Fertility-god. The carving over Wall-cases 21–2 (an original) is also a portrait of this deity (fig. 19).

God F is probably the War-god.

God G is the Sun-god, recognizable by the Kin-sign on his forehead and, on the monuments, by his filed front teeth. Owing to the fact that his head is a variant for the single-day period, it is very common in the sculptured inscriptions ; it occurs also upon the small bucklers carried by some of the colossal figures. A typical example of one of these is shown on the slabs from the so-called ' Temple of the Sun ' at Palenque (see Wall-cases 1–3), which represent, as the central object, one of these shields slung from two spears (Pl. VI).

God K is the Wind-god, endowed with a foliated nose, very

Fig. 11. Maya Gods, from the Dresden Codex.

like the peculiar mask with which the Mexicans invested their Wind god, Eecatl. He is, naturally, closely associated with the Rain-god.

A god of paramount importance, at any rate in Yucatan, remains to be mentioned. This was the god Kukulkan, the god of life and craftsmanship, the inventor of the calendar. The name of this deity is interesting; *Kukul* was the name given to the Quetzal-bird, while *Kan* means snake. Thus the name of the great culture-god of Mexico, Quetzalcoatl, who was so closely associated with the Toltec, is a literal translation of Kukulkan (since *Coatl* in the Nahuatl language means snake). But this god does not appear to be represented, except by implication, on the earlier monuments. In Yucatan, especially at those sites, such as Chichén Itzá, which show evident signs of Toltec influence, figures of a deity clad in a dress representing a feathered snake appear frequently upon the monuments (fig. 12).

FIG. 12. Chichén Itzá. Quetzalcoatl-Kukulkan; Toltec period.

Perhaps, in early times, the god Kukulkan was considered so high and mysterious a Personage that his portrayal in human form was avoided. At the same time the combination of bird and snake is by no means rare, and may have been employed as his emblem. Thus, on the slabs enshrined in the 'Temple of the Foliated Cross' at Palenque (Wall-cases 4–6 and fig. 13[1]), perched upon the conventional maize-plant which constitutes the main feature of the design, is a large bird, within the wing of which, but upside-down, is a highly conventionalized, yet easily recognizable, snake's head. The serpent-bird, as remarked above, is by no means uncommon in early Maya art, and the practice of representing a particularly high and mysterious deity by means of a symbol only has many parallels in the religious history of mankind. To take but one instance, the death of Buddha took place about the year 483 B. C., but it was not until India had absorbed the artistic traditions of Greece (about the first century

[1] Compare also fig. 17.

A. D.) that Buddha is represented in Indian art otherwise than by a symbol. So, too, in the art of the Maya, it was not until Toltec influence made itself felt in Yucatan that Kukulkan, the High-god of the Maya, who had become the tribal god, Quetzalcoatl, of the Toltec (and in the process had been shorn of much of his mystery), was depicted in anthropomorphic form. A clue to the real significance of Kukulkan as a High-god is afforded by a legend current among the Tzental, a tribe of Maya stock, wherein allusion is made to him in the terms of 'the feathered snake which goes in the waters'. This probably typifies the ripple or 'catspaw', born of wind and water, the aspect of which suggests feathers, and the motion a snake. Both as representing motion (i.e. primordial motion) and wind (i.e. breath), the god represented, in his earliest conception, Life.

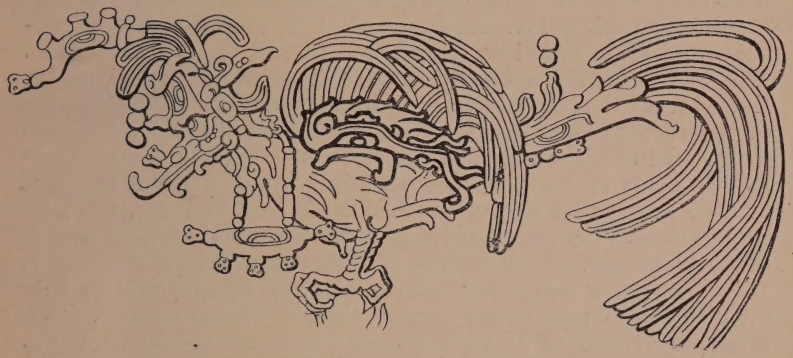


FIG. 13. Serpent-Bird from the Relief in the 'Temple of the Foliated Cross', Palenque.

The Early Maya do not appear to have indulged in human sacrifice. They made offerings of images, produce, and animals, wild and domestic, and also offered blood drawn from their own persons. This blood-offering is usually known as the 'penitential rite', and consisted in piercing the ears or tongue. In some cases a cord, with thorns attached, was drawn through the tongue, and this practice is illustrated upon the (original) slabs from Menché exhibited on the North wall of the North-east landing (C and H) (see Pl. VIII). At the time of the Spanish conquest, the Maya of Yucatan certainly practised human sacrifice, but it is equally certain that the rite had been introduced owing to contact with the culture of the Mexican Valley.

## THE RELATIVE DATING AND HISTORY OF MAYA SITES

The next question to be considered is the question of the date of the various sites, and this must necessarily be divided under

two headings, relative and absolute. Since the Maya chronological system is known, the relative date of individual monuments can be determined, and, with due allowance for decay and imperfect exploration, the relative date of the various sites, together with the absolute length of their periods of occupation. But the absolute dates of monuments and sites, that is to say, their position in European chronology, is another, and far more obscure, question, since it involves the correlation of the Maya time-system with our own.

It will be best to deal first with the relative dating of the Maya sites, since a discussion of this question casts a most significant light upon the development of Maya culture as a whole, and is, in its main lines, less subject to controversy. A detailed survey of the Maya area, including all the discoveries made by field-workers who have followed Maudslay's lead, is beyond the scope of this guide. As far as possible, attention will be concentrated upon the sites represented in the present exhibition. This is rendered feasible by the fact that Maudslay's explorations included sites which may be regarded as representative of the various local phases of early Maya civilization, and also extended to Chichén Itzá in Yucatan, which, from the archaeological point of view, is the most important Maya settlement in that area. The site of Chichén Itzá, to anticipate, owes its importance to the fact that its monuments exhibit several phases of development. The earliest of these monuments (one only, and discovered since Maudslay's survey) bring the site into definite relation with the earlier, Central Maya, culture. The next are typical of Maya culture as transplanted to Yucatan. The latest show a strong affinity with the Toltec remains of the Mexican Valley.

To return to the main question. It has been remarked above that the cradle of Maya civilization, as defined by the distribution of architectural remains, forms, roughly, a triangle with the apex downwards. In the North and West, this area is bounded by the sites of Palenque (Chiapas), Piedras Negras (Guatemala; unexplored by Maudslay), and Menché[1] (Chiapas). In the North and East the boundary sites are Uaxactun (unexplored by

[1] American and German archaeologists insist upon calling this site by the name Yaxchilan. The first European to visit the group of ruins was Rockstroh, who gave it the name Menché after the eponymous ancestor, Bol Menché, of the local Maya inhabitants. Maudslay, naturally, adopted the name. Later, Maler rechristened the site Yaxchilan, a purely fanciful name, meaning in the Maya language 'Green Stones'. By all the rules governing the naming of sites, the first discoverer has the paramount right to confer the name. And, in any case, a name which brings the settlement into relation with local tradition has claims superior to a purely imaginative title substituted by a comparatively late visitor. The site has always been known as Menché in England, and that name will be used throughout this guide. This note is inserted merely for the benefit of those who may wish to make a further study of Maya antiquities.

Maudslay), Tikal, and Naranjo (unexplored by Maudslay). These three sites are in Guatemala. The apex of the inverted triangle is formed by Copan (Honduras) and Quiriguá (Guatemala). Within this area, the earliest site, and the longest occupied, appears to have been Uaxactun, which has been discovered only in quite recent times. When we come to consider the three settlements which, after Uaxactun, show upon their monuments the earliest dates which may be considered contemporary, we find that they are Tikal (close to Uaxactun), Piedras Negras, and Copan. That is to say that the outlying cities show the earliest dates. This is contrary to what might have been expected ; the natural tendency of a culture is to move along one definite line or to radiate from a centre. In the present case we have a cultural area in the form of a triangle, with the earliest sites situated practically upon the angles.

It is true that at some early sites, such as Tikal, plain stone Stelae are found, which probably once bore painted designs ; it is equally true that most ancient stone sculptures exhibit all the technique of wood-carving, and so hint that stone records were preceded by those of wood, which, owing to the climate, have not survived. But a survey of the existing monuments suggests that this area, shortly after the end of the 9th Cycle, was the seat of a widespread and homogeneous culture with its most important settlements upon its frontiers. So that, when stone-carving was initiated, probably in the North-east, there was an immediate response in the North-west and South.

There are two main periods into which Maya chronology, for convenience of classification, is usually divided. The earlier is known as the ' Old Empire ', and comprises the sites enclosed within the approximately triangular boundary indicated above. This includes all monuments from the earliest times down to the date 10.2.0.0.0, 3 Ahau, 3 Ceh. This is the latest date recorded within the area, and is found at three sites, including Tikal. The other period is known as the ' New Empire ', and comprises sites outside the boundaries of the Old Empire, all of which record dates subsequent to (and not earlier than) 10.2.0.0.0, whether in the Long Count or Katun Count.

To deal first with the Old Empire, three subdivisions are recognized, which are the following :

| | |
|---|---|
| Archaic Period . . | Earliest times to 9.10.0.0.0 |
| Middle Period . . | 9.10.0.0.0 to 9.15.0.0.0 |
| Great Period . . | 9.15.0.0.0 to 10.2.0.0.0 |

Fig. 14 shows in diagrammatic form the relative dating and occupation of the principal sites with which this guide is concerned. It is based, as all studies of the Maya monuments must be based, upon Maudslay's researches, but it has been supplemented by

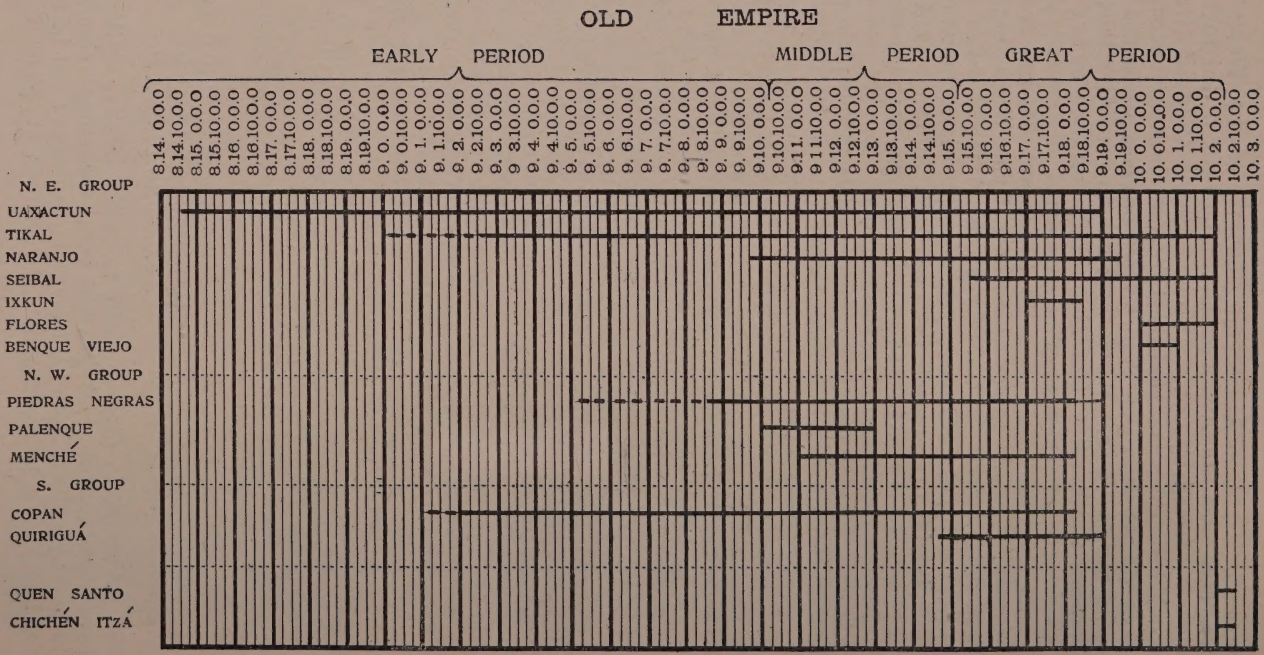



FIG. 14. Diagram showing Relative Dating of Maya Sites.

the results of other field-workers. This table shows clearly that, at the close of the Archaic Period, there were five principal Maya settlements. In the North and East, Uaxactun (the earliest of all), Tikal and Naranjo ; in the North and West, Piedras Negras ; in the South, Copan.

At the end of the Middle Period, approximately a century later, the same sites still flourished ; but a number of others appear, all of them, with one exception, within the area enclosed by the former. The exception is Palenque, to the North and West of Piedras Negras ; the rest, or rather those of the rest with which this guide is concerned, are Menché, South-east of Piedras Negras, and Quiriguá, immediately North-east of Copan.

The Great Period witnessed the foundation of a large number of additional sites, all within the region delineated above. Many of them are small and comparatively unimportant, but they bear witness to the extraordinary activity in building which inspired the Maya of this period. One only of these new sites is represented in the present exhibition, viz. Ixkun, South of Naranjo. One other demands especial mention : Seibal, in Guatemala, which lingered on after most of its neighbours had been deserted. From a survey of the dated monuments at present discovered, it would appear that the abandonment of some sites had been commenced even at the height of the ' Great Period ', about 9.18.0.0.0, and from this point a decline of extraordinary rapidity is evident. About 60 years later, by 10.1.0.0.0, the only survivors are a small group in the North-east, including Tikal, and Seibal in the centre. The date 10.2.0.0.0, regarded as the concluding date of the Old Empire, is recorded at only three sites, Tikal, Seibal, and Flores (about midway between the first two).

A distinguishing feature of the Old Empire, as remarked above, was the Long-Count system of recording dates. A distinguishing feature of the New Empire is the ' Katun Count ' (see p. 27). The latter was a simplification of the former, and the transition from one system to the other, though apparently abrupt, was not clean-cut. Clear signs of dating by the terminal day of the current Katun make their appearance upon the later monuments of the Old Empire, and the Long-Count system survives into the New Empire. That survival is exemplified by only three instances, but they are sufficient to furnish a connecting-link between the two epochs. The feature which distinguishes the New Empire from the Old is a radical change of site. After the date 10.2.0.0.0 the only Long-Count dates at present discovered are three in number.[1] One of these was found at Chichén Itzá,

[1] A possible exception is the Stela discovered at Tuluum. This shows an inscription, which, starting with the Long-Count date 9.6.10.0.0, 8 Ahau, 12 Pax, leads to a Lahuntun, ending on 7 Ahau. This might be 9.13.10.0.0,

far in the North of Yucatan, and records 10.2.9.1.9, 9 Muluc, 7 Zac. The other two were discovered at Quen Santo, in Guatemala on the Chiapas border, at a point almost diametrically opposed to the last; these record the dates 10.2.5.0.0, 9 Ahau, 18 Yax, and 10.2.10.0.0, 2 Ahau, 13 Chen. For the purposes of this guide the Quen Santo dates are not important, but they afford an indication of the channel by which Maya culture, in an attentuated form, reached the Mexican Valley, where it was fostered by the Toltec. The Chichén Itzá date links the Old Empire with the New Empire, which blossomed in Yucatan, and gave birth to a complex of 'cities', which bore a close resemblance to those which constituted the Old Empire.

The New Empire, which lasted until the Spanish Conquest, is represented in this exhibition by the site of Chichén Itzá. For this reason alone it demands a short discussion. Supplementary reasons are supplied by the facts, first, that the later monuments of Chichén Itzá (represented in the exhibition) bear definite evidence of Toltec artistic influence, emanating from the Mexican Valley; second, that this site is closely connected with the native records known as the 'Books of Chilan Balam', which give the history of a Maya clan up to the Conquest and furnish *data* connecting (though not indisputably) early Maya chronology with our own.

The Books of Chilan Balam, of which there are several versions, contain the history, briefly expressed, Katun by Katun, of the Tutul Xiu clan of Yucatec Maya. The various accounts, which were committed to writing after the Conquest, agree in the main details, but differ considerably in the time-count. In some, whole Katun-rounds appear to have been omitted, in others, interpolated, and this fact constitutes one of the chief difficulties encountered in the attempt to correlate Maya chronology with our own (see later, p. 47). In brief, the records show that the Tutul Xiu migrated from their original home in 'Nonoual' (at present unidentified, but almost certainly somewhere in the Central Maya area), in a Katun 8 Ahau, probably 9.13.0.0.0, 8 Ahau, 8 Uo as expressed in the Long Count. In Katun 13 Ahau (9.17.0.0.0) they settled at 'Chacnouitan', and in Katun 6 Ahau (10.7.0.0.0) removed to Balcalar, in which region several sites of about that date have been discovered. While resident here, they heard of Chichén Itzá, which appears already to have been colonized by another migratory branch of Maya who carried

7 Ahau, 3 Cumhu; 10.0.0.0.0, 7 Ahau, 18 Zip, or 10.6.10.0.0, 7 Ahau, 18 Yaxkin; Morley decides in favour of the last; but it is most unlikely that the Long-Count system of reckoning survived as late as this. But if one of the earlier dates mentioned is the terminal date of the inscription, we must regard Tuluum as having been colonized before the collapse of the Old Empire. The whole question is at present doubtful.

thither the Long-Count system of dating. Attracted by the natural advantages of the site they set out in search of it, and settled there in Katun 13 Ahau (10.10.0.0.0, to express this date in the, now, long obsolete Long Count). Rather more than a century later Chichén Itzá was deserted, but after three and a half centuries the Tutul Xiu returned and reoccupied the site. Meanwhile other settlements had been founded in Yucatan, of which the most important historically were Uxmal and Mayapan. These two cities formed, with Chichén Itzá, a confederacy, which endured for two centuries. This confederacy is known as the 'League of Mayapan', and the story of its violent dissolution introduces a number of personal names which are not Maya but Nahuatl. The course of history appears to have been this. By this time the Toltec domination of the Mexican Valley had been broken, and a great migration of the Toltec had taken place in a westerly and southerly direction. Dissension had arisen between the triple alliance in Yucatan, and the ruler of Mayapan, the paramount city, employed Toltec mercenaries in an attempt to coerce his former associates. The result was successful, Chichén Itzá fell, and appears to have been handed over to the Toltec allies, who erected there many monuments adorned with the artistic motives and glyphs characteristic of their own particular culture (see pp. 29 and 74). Subsequent history is concerned with the internecine feuds of the various clans, which had considerably reduced the general level of Maya culture in Yucatan by the time that the arrival of the Spaniards extinguished it for ever.

The history of the New Empire has been sketched here in the briefest possible terms, and this account does scant justice to the extent and importance of the architectural remains of Yucatan. But a guide to an exhibition is necessarily limited by its material, and those who wish to pursue the study of Maya culture further are referred to the short bibliography on p. 85.

## Correlation with European Chronology

The question of the absolute dating of the Maya remains, which involves the correlation of the Katun Count with the Long Count, and both with our own chronology, is too long and complicated to be discussed fully in a guide. For present purposes the correlation first suggested by Bowditch has been adopted, which gives the following results:

| *Long Count* | *Katun* | B.C. |
|---|---|---|
| 9.0.0.0.0, 8 Ahau, 13 Ceh | 8 Ahau | 94 |
| 9.1.0.0.0, 6 Ahau, 13 Yaxkin | 6 Ahau | 74 |
| 9.2.0.0.0, 4 Ahau, 13 Uo | 4 Ahau | 55 |
| 9.3.0.0.0, 2 Ahau, 18 Moan | 2 Ahau | 35 |
| 9.4.0.0.0, 13 Ahau, 18 Yax | 13 Ahau | 15 |

| *Long Count* | *Katun* | A.D. |
|---|---|---|
| 9.5.0.0.0, 11 Ahau, 18 Tzec | 11 Ahau | 5 |
| 9.6.0.0.0, 9 Ahau, 3 Uayeb | 9 Ahau | 25 |
| 9.7.0.0.0, 7 Ahau, 3 Kankin | 7 Ahau | 45 |
| 9.8.0.0.0, 5 Ahau, 3 Chen | 5 Ahau | 64 |
| 9.9.0.0.0, 3 Ahau, 3 Zotz | 3 Ahau | 84 |
| 9.10.0.0.0, 1 Ahau, 8 Kayab | 8 Ahau | 104 |
| 9.11.0.0.0, 12 Ahau, 8 Ceh | 12 Ahau | 124 |
| 9.12.0.0.0, 10 Ahau, 8 Yaxkin | 10 Ahau | 143 |
| 9.13.0.0.0, 8 Ahau, 8 Uo | 8 Ahau | 163 |
| 9.14.0.0.0, 6 Ahau, 13 Moan | 6 Ahau | 183 |
| 9.15.0.0.0, 4 Ahau, 13 Yax | 4 Ahau | 202 |
| 9.16.0.0.0, 2 Ahau, 13 Tzec | 2 Ahau | 222 |
| 9.17.0.0.0, 13 Ahau, 18 Cumhu | 13 Ahau | 242 |
| 9.18.0.0.0, 11 Ahau, 18 Mac | 11 Ahau | 262 |
| 9.19.0.0.0, 9 Ahau, 18 Mol | 9 Ahau | 281 |
| 10.0.0.0.0, 7 Ahau, 18 Zip | 7 Ahau | 301 |
| 10.1.0.0.0, 5 Ahau, 3 Kayab | 5 Ahau | 321 |
| 10.2.0.0.0, 3 Ahau, 3 Ceh | 3 Ahau | 340 |

The periods into which for convenience of reference the Maya civilization has been divided can therefore be expressed in our chronology as follows:

| | | |
|---|---|---|
| Old Empire | Archaic Period | Earliest times to 104 A.D. |
| | Middle Period | 104 to 202 A.D. |
| | Great Period | 202 to 340 A.D. |
| New Empire | | 340 A.D. and later |

Recently Professor Morley has worked out another correlation which gives different results. His theory would place 9.0.0.0.0, 8 Ahau, 13 Ceh, in 176 A.D., and 10.2.0.0.0, 3 Ahau, 3 Ceh, in 610 A.D. That is to say, his dating is consistently 270 years later than that first suggested by Bowditch. Those who are convinced by Morley's arguments have merely to add 270 years to the dates as they appear in this guide.

## The Decay of Early Maya Culture

The reasons which led to the rapid, and almost simultaneous, abandonment of this long-occupied area, with its wealth of buildings, so soon after its most flourishing period, are unknown. Various suggestions have been put forward, but no one of them is satisfactory. Certainly there was no invasion by a hostile people, and there is no evidence of internecine feuds, such as, in the New Empire, led to the break-up of the Mayapan confederacy. The Maya do not appear to have been a fighting people at this early time. Weapons, other than ceremonial axes and spears, are hardly ever shown upon the monuments. Some Stelae, it is true, discovered at certain of the border sites, appear to portray a chief with captives, but these constitute an almost infinitesimal minority. Furthermore, the settlements themselves appear to owe their present ruinous condition to the

invasion of forestal growth alone, and exhibit no traces of damage wrought by the hand of man. Earthquakes and pestilence have been suggested, on very slender grounds. Volcanic disturbances do not drive peoples from their cities, and the Maya sites show comparatively few signs of them. As regards pestilence, it is probable that this region was far healthier in the Old Empire period, when large tracts of what is now forest were under cultivation, than at the present day. It has been suggested that the agricultural methods of the Maya gradually exhausted the soil, the diminished fertility of which ceased to supply the needs of the numerous population necessary for the construction of great settlements such as these. On the other hand, the theory of climatic change has been put forward; it has been suggested that a rapid increase in the rainfall stimulated forestal growth to such an extent that the plantations were threatened, and at the same time fostered the malarial mosquito, perhaps the principal foe of the present-day explorer. To all of these theories there are serious objections, and it cannot be said that any one of them provides a satisfactory explanation. One fact is evident; the Maya exodus, which involved the abandonment of sites of great religious importance, erected by the labour of many generations, must have been due to a cause of the most compelling nature, and, probably, to a combination of causes. But it must be admitted that the cause or causes are still involved in mystery.

### The Function of the Settlements

The actual meaning of the settlements, the part they played in the native life, demands a short discussion. In the first place it is highly improbable that they were in any sense military posts. Apart from the almost complete absence of any reference to warlike operations in the sculptures, the arrangement of the various buildings, pyramid-temples, courts, 'palaces', and so forth, was obviously not planned with any view to defending the site. It is reasonable to suppose that the daily life of the early Maya was not dissimilar to that of their descendants in Yucatan. It is probable that the great majority of the population, engaged in agriculture and hunting, lived in scattered villages constructed of perishable materials. The 'cities', then, erected at the cost of so much labour, must have been religious and ceremonial centres, to which the surrounding population habitually repaired for the celebration of the seasonal festivals, or for the performance of other communal rites. The majority of the buildings appear to have been temples, but there are a number of architectural complexes, especially at Palenque (Pl. VII) and some of the Yucatec sites, which may have been residential,

and were probably occupied more or less permanently by the rulers and the priests. The Early Maya sites, therefore, probably represent so many nuclei of settlements, around which the population at large erected the primitive dwellings which are all that a tropical climate requires. But that population must have amounted to a considerable number in view of the labour represented by the architectural remains.

## Maya Architecture

The Maya architects produced some of the most wonderful buildings which have ever been erected by a people ignorant of the principle of the arch. But in one respect they were inferior to the architects of Ancient Peru, they did not understand the bonding of corners.[1] For bridging a space they knew only two methods, the beam and the false arch. Beams, usually of wood, were employed as lintels for doorways, and the decay of these is responsible for the partial collapse of many of the structures. The false arch, employed for the roofing of chambers, was constructed as follows: from the height of the chamber wall, the architect commenced building inwards, by means of overlapping courses, until the gap between the two opposite walls was so reduced that it could be bridged by a single slab. Meanwhile the outer surface of the wall was carried up vertically, or, as at Palenque, with a slight ' batter '. This process gave the exterior façade a very deep entablature, and so provided an extensive space for decorative ornament of which the Maya builder took full advantage (see fig. 15). At some sites, such as Palenque and Menché, certain buildings were surmounted by a decorative structure known as a ' Roof-comb ', which, by its weight, gave solidity to the mass. The structure of the walls, necessarily of great solidity, was of rubble faced with stone blocks, which, in Yucatan, constituted a decorative mosaic. This method of building enabled the ancient architects to erect buildings containing chambers of indefinite length, but of very limited width. It was a wasteful method, since the space within was extremely small as compared with the mass of the building. Even at so late a site as Uxmal in Yucatan, representing a period when the Maya had profited much by past experience, the chamber-space of one of the most important buildings is estimated as about one-third of the mass. At Tikal, one of the earliest sites, the chamber-space is a great deal less. The impression produced from a study of the earliest Maya architecture is that this people commenced by building caves (see fig. 16).

[1] This is true as a general statement, but it must be remarked that one or two isolated cases of bonding have been discovered.

Apart from stone-work, the art of stucco-decoration was developed to a considerable degree, especially at Palenque. This very fact adds to the difficulties involved in a discussion of that site. According to artistic and architectural criteria, it is the most advanced, and therefore presumably the latest, of the

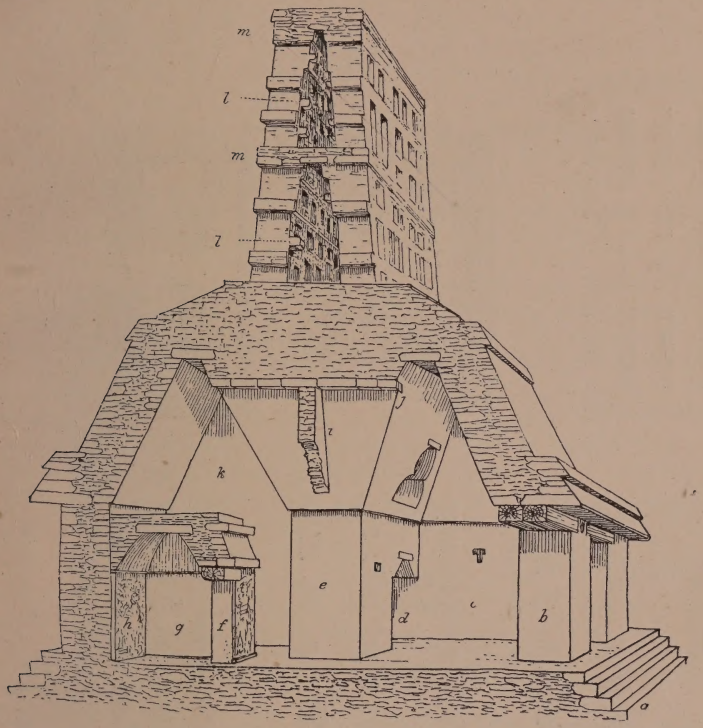



FIG. 15. Palenque: Section through the 'Temple of the Cross'. (See fig. 16. 6.)

*a*. Stairway.
*b*. Pillar (restored).
*c*. Vestibule.
*d*. Doorway to inner side-chamber.
*e*. Doorway to inner main-chamber.
*f*. Doorway to shrine.
*g*. Shrine.
*h*. Original position of mural tablet.
*i*. Masonry arch-brace.
*j*. Capstones of doorway arch
*k*. Partition-wall.
*l*. Steps for ascending roof-crest.
*m*. Middle floor and roof of roof-crest.

Old Empire settlements. Yet, to judge from its dated monuments, it was abandoned shortly after 9.13.0.0.0. Stucco, however, is perishable under tropical conditions, and there exist at Palenque numerous inscriptions in this material which are so defaced as to be illegible. The probability is that the site was

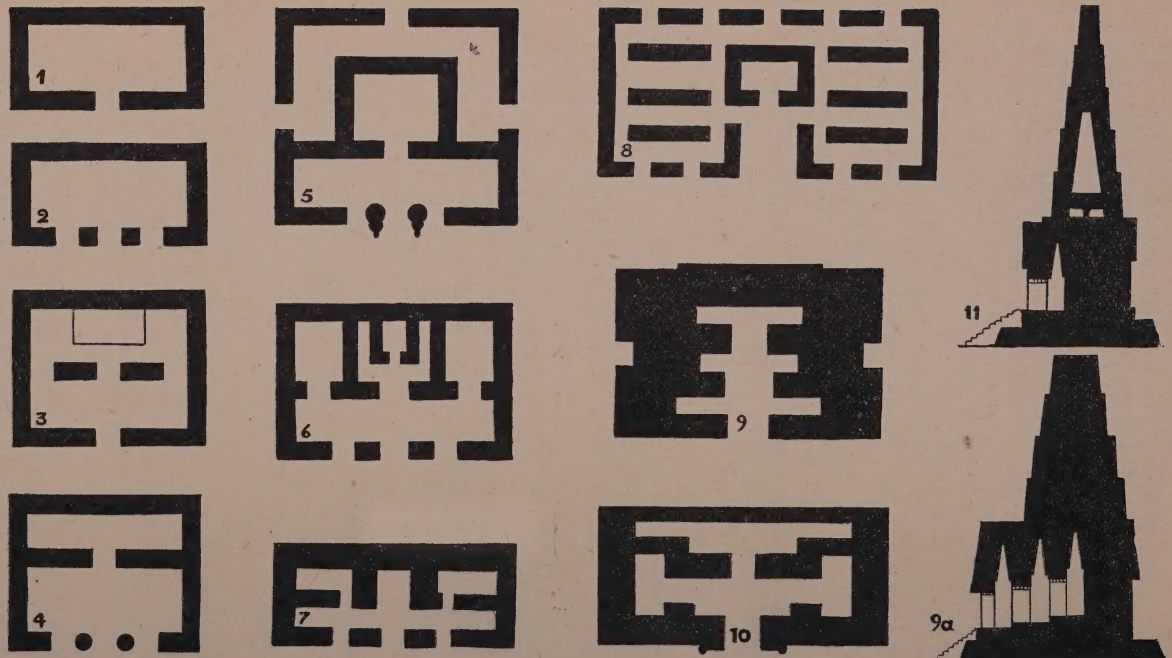



FIG. 16. Ground-plans and elevations of Maya Temples.

1. Single-chambered building.
2. Single-chambered building (wall broken by doorways).
3. Two-chambered building.
4. Two-chambered building (with circular columns).
5. Temple at Chichén Itzá (Toltec period).
6. Temple at Palenque (see fig. 15).
7. Temple at Menché.
8. Temple at Piedras Negras.
9. Temple at Tikal.
9*a*. Elevation of 9.
10. Temple at Copan.
11. Temple at Tikal with single chamber and hollow roof-crest.

occupied for a far longer period than the surviving dates indicate, but that the stucco inscriptions, which would provide the evidence for this fact, have perished. Apart from the structure of the buildings themselves, one of the principal features of Maya architecture is shown in the fact that all buildings of importance are erected upon artificial mounds. In the case of edifices which are identified as temples, these mounds are in the form of quadrangular stepped pyramids, with a stairway constructed up one face (Pl. I). These pyramids, which afford evidence of strenuous labour on the part of a large number of workers, have often been compared with those of Egypt. But it must be remembered that their function was entirely different. In Egypt, the pyramid *was* the building; in America, the pyramid was merely the platform for a building, that building being a temple, which was by this means raised above the rest of the architectural complex, either to emphasize its dignity or to enable it to be used as an observatory. The latter theory accords well with the extreme importance which calendrical records held in the Maya religion. A frequent feature of Maya 'town-planning' is a complex of four temple-pyramids arranged in a square. The ritual importance of the four cardinal points in Maya religion may be regarded as established. An interesting line of inquiry, as yet unattempted, is suggested by these two facts. Were the temples employed as observatories from which the risings of certain heavenly bodies, sun, moon, and morning star, could be observed, in order that a check could be kept upon the calendar? The Maya observed a consistent solar year of 365 days, which is a fraction of a day less than the true solar year, and there is no evidence that they employed any system of intercalatory days such as our 'Leap-year'. They must have noticed that the seasonal festivals gradually fell askew with the seasons, and it may be that the inscriptions include calculations which had as their object the rectification of the ritual calendar. Investigation on these lines might produce results of the greatest value, but they must be conducted by a qualified astronomer, and the site of Tikal, which includes the most numerous and loftiest pyramidal structures, would probably provide the most fertile field of research.

The question of Maya architecture cannot be discussed fully in this guide. An indication of the ruined Maya buildings is provided by Maudslay's photographs, of which a number are exhibited in the wall-cases (see also Pls. I, II *b*, and VII). Those who wish to pursue the subject farther are referred to the select bibliography on p. 85.

## Maya Art

It is perhaps desirable, in this introduction, to include a paragraph upon the salient features of Maya art. This para-

graph will be written in the shortest possible terms. It is better that the monuments, as reflected in the exhibition of casts, should plead their own cause ; and, at the present day, when a readjustment of artistic values is so obviously in process, any form of special pleading on behalf of a local artistic development is out of place. The art of the Maya, as evidenced in the sculptures, is distinguished by a remarkable sense of line and a quality of serene massiveness which invest their monuments with a strange dignity. The dignity is always present : in the case of what is perhaps the most beautiful figure known to Maya art, the priest on the right-hand slab of the relief in the 'Temple of the Sun' (Palenque ; Case 3 and Pl. VI), that dignity is achieved by sheer beauty of line. In the case of Stela H (Copan ; South-west corner and Pl. IV), it is enhanced by the sense of physical strength conveyed by the deep-bitten relief of the carving on the sides of the monument. Monolith P (Quiriguá ; in the centre of the room and Pl. II *a*) arrests attention by reason of the contradiction existing between its massiveness on the one hand, and the plastic nature of its sculpture on the other. In respect of boldness of conception, vigour of execution, and mastery of material, Maya art and craftsmanship stand high : the main fault is a tendency to over-elaboration and complexity. This fault is due, principally, to an apparent dislike of the vacant space (not quite invariable, as witness the figure of the priest mentioned above ; the lower lintel from Menché exhibited in Wall-case 10 ; and lintel III illustrated in Pl. VIII, the original of which is exhibited on the wall of the North-east landing). But a contributory cause is the extremely symbolical and allusive nature of all aboriginal American art, which imposed upon the sculptor the duty of combining in a given design a maximum of details which were ceremonially significant. Hence such complications as bird-and-snake, or bird-and-snake-and-man. But it must be remembered that the complexity of the relief-carvings, and probably of the Stelae also, was mitigated by colour. The sculptures, when their details were differentiated by painting, as in many cases they undoubtedly were, must have presented a far less complex appearance than they do to-day. Yet, even so, Maya art must plead guilty to a tendency to over-elaboration.

But the symbolic tendency of Maya art did not inhibit the realistic sense of the artist. To the Maya sculptor the relief presentation of a human figure in profile did not provide the difficulties which the artists of Ancient Egypt and Assyria found insuperable. The Palenque slabs (Wall-cases 1–6) and those from Menché (Wall-case 10 and the originals on the South-east landing) provide signal proof of this fact ; even so difficult a problem as a three-quarter presentment they attempted with a considerable measure of success. (See, for instance, the support-

Quiriguá : Stela F.

ing figures in the central slab of the relief in the 'Temple of the Sun', Wall-case 2 and Pl. VI.[1]) But in the matter of ornamental motives the Maya showed rather unexpected limitations (though these limitations are due, in very great measure, to the symbolical nature of the art of which they were the interpreters). In Maya art, as in the art of so many American peoples, the serpent-motive is predominant, and a very large proportion of decorative and space-filling details is derived from the head of a snake, often conventionalized to such a degree that the origin of the design is recognizable only by the eye of an expert. Next in importance come feathers, never conventionalized to the same degree. Here it may be claimed that no people in the world ever appreciated so fully the value of feathers as an artistic motive, or produced such wonderful effects by the application of that motive to stone-carving (note especially Stela H, Copan; Stela F, Quiriguá, and certain of the slabs from Menché; also figs. 12, 13, and 17, and Pl. III). But a peculiar limitation is evidenced in the singular lack of plant-motives. It might have been expected that a people familiar with the luxuriant vegetation of the tropics,

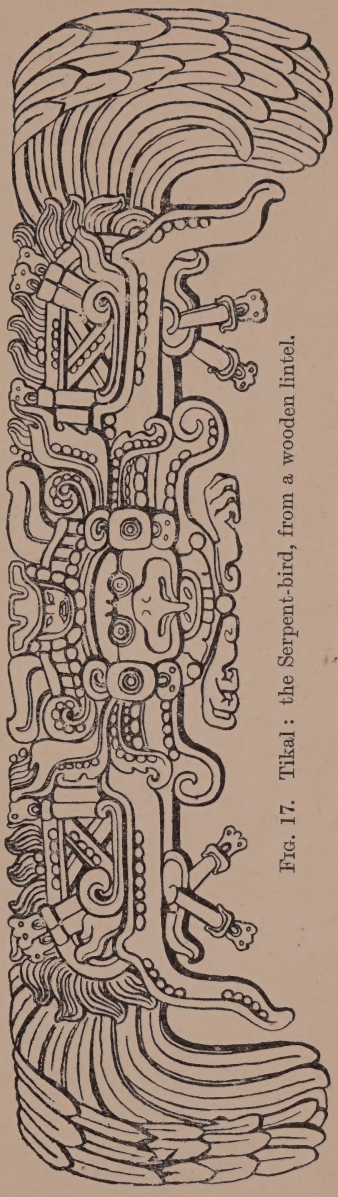


Fig. 17. Tikal: the Serpent-bird, from a wooden lintel.

[1] The treatment of the human face may appear displeasing to western eyes, but it must be remembered that the Maya practised head-deformation, and that an artificial flattening of the forehead throws the nose and lower portions of the face into unnatural relief. This is especially noticeable in the relief sculptures of Palenque and Menché. At any rate they knew how to represent an eye in profile, which the sculptors of Egypt and Assyria did not.

and showing such appreciation of plumage, would have incorporated in their decorative art many motives derived from the vegetable world. In actual fact there is practically only one plant-motive in Maya art, and that is derived from a water-plant (instances are provided by the slabs from Palenque on the floor of Wall-cases 5–6, and the decorative border at the base of the design from the Temple of the Ball-Court at Chichén Itzá on the North wall to the left of the doorway). Even the column, where it occurs, was not a tree-form, as so often in the Old World. In the earliest buildings, when found, it is square, being, in fact, merely a section of the wall (see fig. 16). In later buildings where circular columns do occur (as at Chichén Itzá), they are carved to represent serpents; and though, in the latest architectural remains, a development in the direction of the caryatid-form becomes evident, the vegetable world remained, to the end, neglected by the Maya artist.

# DESCRIPTION OF THE EXHIBITS

## QUIRIGUÁ. FLOOR EXHIBITS.

No. IV. *Centre of the room.* Plaster cast of Monolithic Animal P. This remarkable monolith is a solid boulder of stone, of the estimated weight of over three tons, and measuring 9 feet 8 inches, by 11 feet 6 inches, by 7 feet 3 inches high. It is carved to represent the double-headed Earth-monster (see p. 37), holding the Sun- or Sky-god in its jaws, but is so overlaid with subsidiary ornamentation that the main design is somewhat obscured. The principal head of the Monster faces the door leading to the Iron Age Gallery (East), and the figure of the god seated in the mouth is easily recognizable. Round the god can be seen the line of the monster's jaws, with their great fangs. Right and left are the creature's eyes. At the other end is the secondary head, and the outline of the hind legs, with great taloned feet, can be seen from the sides. The fore-legs are indicated near the main head, but are so obscured by glyphs that they can be discerned only by the practised eye. Viewed from the top, the monument presents the aspect of a gigantic grotesque face, while the main superficial ornament of each side is constituted by a colossal and highly-conventionalized serpent-head, and the head of the Maize-god in profile and upside down. Intermingled with these principal motives is a series of small grotesque figures, glyphs in 'cartouches' and scroll-work. The main portion of the inscription is arranged around the secondary face at the rear, and an Initial glyph can be identified at the top of the monster's left hind-leg. The glyphs of this inscription are much weathered, and anything like a continuous reading is impossible. Fortunately the Initial Series is legible, and records 9.18.5.0.0, 4 Ahau, 13 Ceh. It is reasonably certain that this Hotun-ending was the date which the monument was carved to commemorate. It has been remarked above (p. 36) that, at a certain period in the history of Quiriguá, Hotun-markers were sculptured in the form of monstrous animals. The earliest of these appears to be Animal B (Wall-cases 15–18, see p. 59), presenting the Long-Count date 9.17.10.0.0. The next is Animal G (not exhibited), 9.17.15.0.0, and the next, Animal O (also not exhibited),9.18.0.0.0. The present monument, therefore, concludes the series with the date 9.18.5.0.0, 4 Ahau, 13 Ceh (*c.* 267 A.D.). (Pl. II *a*.)

Nos. X and XI. *On the West and East walls, at the North end of the room.* Plaster casts of the inscriptions on the West and East sides of Stela D. This monument is carved from a single block of stone, and measures 19 feet 6 inches high (above ground), about 5 feet broad at the base, and 2 feet 3 inches in depth. On each face is carved, in elaborate relief, a figure in human form, wearing ceremonial dress, and carrying the ceremonial axe and buckler. The sides are devoted to inscriptions, of which the Initial glyphs are some of the most elaborate known. The text commences on the West side (Exhibit X). Following the Introductory glyph, an Initial Series reads 9.16.13.4.17, 8 Caban, 5 Yaxkin (A3–B14 and A17). This date is exactly two complete Katuns later than the date which forms the starting-point of the inscription of Stela F at the same site, and which was of evident importance in the history of Quiriguá (see Wall-cases 11–13 and p. 34). Below, in B21, is a Secondary series, recording 1.13.3 (reversed), the Tun-coefficient being expressed in the so-called 'Thumb-form'. This Distance-number, added to the Initial date, leads to 9.16.15.0.0, 7 Ahau, 18 Pop, which is recorded as an Initial Series on the East side of the Stela (Exhibit XI, on the other side of the room), occupying the glyph-blocks A3–B14 and A17. The Calendar-round date 7 Ahau, 3 Pop, occurs in A20, accompanied by certain very puzzling glyphs, but 7 Ahau, 18 Pop, is repeated in A22. This monument may therefore be regarded as commemorating the close of the Hotun-period 9.16.15.0.0, 7 Ahau, 13 Pop (*c.* 237 A. D.).

*In the Portico outside the Museum, immediately to the West of the main entrance.* Plaster cast of Stela E. This, the largest Stela known, measures no less than 25 feet above ground. On each of the two broader faces is sculptured a colossal standing figure in human form, wearing elaborate dress and ornaments, and carrying a ceremonial axe and buckler. The face is bearded, a feature not very common in Maya sculpture. The two sides are covered with glyphs, in each case headed by an Initial Series. The inscription commences on the original West side (now facing North) with an Introductory glyph followed by a date in the Long Count, 9.14.12.4.17, 12 Caban, 5 Kayab (A4–B6 and B8b). In recording this date the sculptor has made a mistake; the present combination of Long Count and Calendar-round date is impossible. The date intended no doubt was 9.14.13.4.17, 12 Caban, 5 Kayab, which was evidently of great importance at Quiriguá (see p. 34). In B10–Alla is recorded the Distance-number 6.13.3 (reversed), and, in B11, the date to which it leads, 4 Ahau, 18 Cumhu (this is the concluding day of the Katun 9.15.0.0.0). The next Distance-number, B12, reads 1.14.6, and is to be counted from the next Katun-quarter

(viz. 9.15.5.0.0), which is not decipherable in the text, to reach 6 Cimi, 4 Tzec, recorded in A13b–B13a. The apparent skipping of a Hotun, or other definite period, is not uncommon in the inscriptions, and the apparent hiatus is probably explained in the glyphs as yet undeciphered. In the same way, the next Distance-number, 1.1.16.15 (A14b–B14), is not reckoned from the last recorded date (9.15.6.14.6, 6 Cimi, 4 Tzec), but from a date exactly 3 Tuns later (i.e. 9.15.9.14.6). So reckoned, it leads to 11 Imix, 19 Muan (9.16.11.13.1), which is recorded in A15b and B15a. From this date the Distance-number 8.4.19 (A17b–B17a) leads to 13 Ahau, 18 Cumhu, ' End of Katun 17 ' (A18–B18), or 9.17.0.0.0. This concludes the decipherable part of the inscription on this side, and the date last recorded is repeated in Initial Series form at the head of the inscription on the original East side (now facing South) of the Stela. No other intelligible dates occur, save the repetition, again, of 13 Ahau, 18 Cumhu, right at the end (B20b–A21a). It may be concluded, therefore, that this monument was erected to mark the conclusion of the Hotun-period 9.17.0.0.0, 13 Ahau, 18 Cumhu (*c.* 242 A.D.).

## QUIRIGUÁ. WALL-CASES

*Wall-cases 11 to 13.* Plaster casts of the inscriptions on the West and East sides of Stela F. Owing to the height of this monolith (24 feet), each inscription is shown in two portions. The Stela itself, of which a photograph is exhibited in Wall-case 14, right, is one of the most beautiful at Quiriguá owing to the extreme skill with which the feather ornamentation in the head-dresses of the colossal figures, carved on the front and back, has been treated by the sculptor. Both of these figures wear extremely sumptuous dress and ornaments. That on the South side bears in his arms an elaborate variety of the ' Bar ' ; that on the North face carries a ceremonial axe and buckler. The inscription, which is discussed at length on p. 31, leads to the date 9.16.10.0.0, 1 Ahau, 3 Zip, which the monument was probably erected to commemorate (*c.* 232 A.D.). (Pl. III and fig. 9.)

*Wall-case 14. On the back of the case.* Plaster cast of the upper surface of Circular Altar L. The design on this altar, which measures 3 feet 4 inches in diameter, consists of a seated human figure, with head turned to the right, wearing as head-dress the mask of a snake which supports the symbol of the planet Venus. The figure is enclosed in a circle, within the field of which there is also a series of glyphs of doubtful meaning. On each side of the circle, along the edge of the Altar, runs a band of glyphs, that on the right including the Calendar-round

date 12 Ahau, 3 Xul. This is probably 9.17.6.7.0, 12 Ahau, 3 Xul, and may represent the date on which the Altar was erected (*c.* 248 A. D.).

*Wall-cases 15 to 18.* Plaster cast of the inscription on Monolithic Animal B. This great monolith, of which a photograph is shown in Wall-case 18, measures 13 feet 4 inches, by 11 feet, by 6 feet 3 inches high. It represents the Earth-monster with the head of the Sun- or Sky-god in its jaws (see pp. 37 and 57). The glyphs are extremely elaborate, the numerals being expressed by complete anthropomorphic figures, holding masks or animals which represent the periods. The Initial Series records the Long Count 9.17.10.0.0, but Glyph 6, which should give the day-sign, is almost entirely defaced. The head, however, of a human figure is just discernible, which evidently records the number 12, and the Long Count immediately above does, in fact, lead to the day 12 Ahau, 8 Pax. The month-sign is not discernible among the complicated glyphs which follow, but it is fair to presume that this monument was carved to record the Hotun-ending 9.17.10.0.0, 12 Ahau, 8 Pax (*c.* 252 A. D.).

*Note*

Limitations of space do not admit of the collection being arranged in chronological sequence. For the benefit of those who wish to study Central American art in its development, the probable dates of the monuments exhibited are given in order below:

| | | | |
|---|---|---|---|
| Stela F | 9.16.10.0.0, 1 Ahau, 3 Zip | 232 A. D. | Wall-cases 11–13. |
| Stela D | 9.16.15.0.0, 7 Ahau, 13 Pop | 237 A. D. | Floor X and XI. |
| Stela E | 9.17.0.0.0, 13 Ahau, 18 Cumhu | 242 A. D. | Portico |
| Altar L | 9.17.6.7.0, 12 Ahau, 3 Xul | 248 A. D. | Wall-case 14. |
| Animal B | 9.17.10.0.0, 12 Ahau, 8 Pax | 252 A. D. | Wall-cases 15–18. |
| Animal P | 9.18.5.0.0, 4 Ahau, 13 Ceh | 267 A. D. | Floor IV. |

## COPAN. FLOOR EXHIBITS

No. I. *At the South end of the room.* Plaster cast of Stela J. This monolith measures 8 feet 10 inches in height, and 3 feet 3 inches in greatest breadth. From the point of view of the arrangement of its inscription, it is one of the most remarkable monuments in the Central Maya region. The West side (now facing South) is carved to represent a colossal grotesque face, highly conventionalized, and outlined by horizontal and vertical bands of glyphs which interlace. Many of the glyphs are defaced, the sequence in which they should be read is by no means certain and, so far, no satisfactory interpretation has been suggested. The inscription on the North side (now facing West)

commences with a Secondary Series reading 6.10.0.0 (reversed), which, in B1, is declared to lead to 7 Ahau, 13 Zip, at the end of Cycle 10. This probably affords an instance of a mistake on the part of the ancient sculptor, who has omitted a bar (the equivalent of 5) from the month numeral, since Cycle 10 actually ended on 7 Ahau, 18 Zip. The date from which the count leads is then 9.13.10.0.0, 7 Ahau, 3 Cumhu. Next follows a series of Tun-signs with numerals in ascending order from 1 to 14, and the series is continued on the opposite side, where the Tun-count is carried to the 16th, and, if the last two glyphs could be deciphered, probably to the 18th Tun. The 5th and 15th Tuns are marked as Hotun-endings, and the 10th is followed by a variant of the Lahuntun sign.

The East side (now facing North), is entirely covered with a mat-like design of diagonal interlaced bands of glyphs. The starting-point is the Introductory glyph at 1 (see fig. 18). From this point the glyphs must be read in order as they occur along each individual interlacing band. Following the Introductory glyph, the signs 1–5 read 9.13.10.0.0, in the following fashion : 9.13 (here the inscription is interrupted by a transverse band) 10.0 (here the inscription is interrupted by three transverse bands) 0. This Initial Series should lead to the date 7 Ahau, 3 Cumhu. The day 7 Ahau was probably recorded on the next glyph, No. 6, now defaced, and 3 Cumhu is shown in No. 12.[1] Glyphs 18 and 19 record a distance-number, 13.10.0.0 (reversed), which is probably a repetition of the Initial Series. In 27 is a variant of the day-sign Lamat, and 32 and 33 record a distance-number, 6.11.12 (reversed), which, reckoned backwards from the Initial date, reaches 9.13.3.6.8, 7 Lamat, 1 Mol. The Stela was probably erected to mark the close of the Hotun 9.13.10.0.0, 7 Ahau, 3 Cumhu (*c.* 173 A. D.).

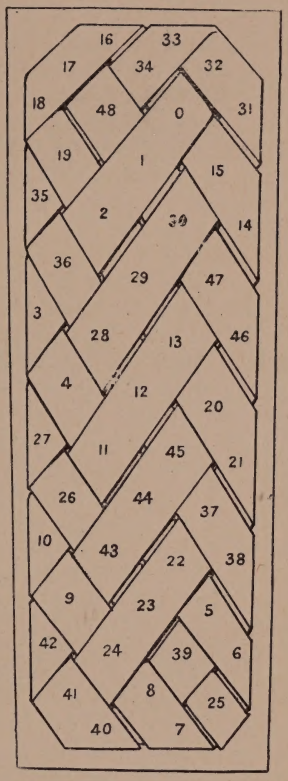



FIG. 18. Key-plan of Glyphs on Stela J.

[1] The numeral at first sight appears to be 8, but close examination shows that the apparent bar is not numerical, but a defaced ornamental space-filler.

No. II. *South-west corner of the room.* Plaster cast of Stela H. This monument, measuring 12 feet high by 3 feet 3 inches broad, is one of the most beautiful at Copan. The front is carved in high relief in the form of a colossal figure, richly dressed in an elaborate skirt, wearing many ornaments and holding the 'Bar' (see p. 36). The head-dress is particularly imposing, and the feather tassels, with which it is fringed, are continued down the sides and back of the Stela. Small subsidiary figures are sculptured on the sides, which are very deeply carved. At the back is a mask bearing the Kin-sign on the forehead, and, above, the triple head-ornament associated with the Sun-god. (For this ornament see fig. 10.) Combined with these emblems of the Sun, the mask exhibits the fleshless jaw associated with the Death-god, and so resembles exactly the rear head of the Earth-monster (see p. 37), and Altar D′, in Wall-cases 21–2). Above the mask is a spirited representation of the Serpent-bird; below is a small human figure, considerably defaced; and below this again, is a short series of glyphs, the only inscription on the Stela.

This inscription is prefaced by no Introductory glyph or Initial date, but commences with a Calendar-round date, 4 Ahau, 18 Muan. If this represents the date in record of which the monument was erected it must be either (*a*) 9.14.19.5.0, 4 Ahau, 18 Muan, or (*b*) 9.17.12.0.0, 4 Ahau, 18 Muan, exactly one Calendar-round later. The former of these dates is recorded on Stela A (see below), and may well be the correct reading. Morley, relying on stylistic criteria, a class of evidence which is not always very satisfactory, prefers the latter. None of the other glyphs provide any assistance, and the question must be left in doubt. (The corresponding dates in our chronology are, respectively, 202 A. D. and 254 A. D.) (Pl. IV.)

No. III. *In the South-east corner of the room.* Plaster cast of Stela A. This monument is 11 feet 6 inches high, and has an average breadth of 3 feet 6 inches. On the face, in bold relief, is carved a human figure clad in elaborate dress and ornaments, holding in its arms the 'Bar' (see p. 36). Small subsidiary figures and serpents also appear in the carving. The other three faces are covered with glyphs. The inscription commences on the North side (now facing West) with an Introductory glyph, followed, in A2–A4 and A9b, by the date 9.14.19.8.0, 12 Ahau, 18 Cumhu. There are no more decipherable glyphs on this side, but on the back a glyph in B2a records the distance-number 3.0 (reversed), which is followed in C2 by the Calendar-round date 4 Ahau, 18 Muan. This date is reached by reckoning 3.0 backwards from the Initial date, and its position in the Long Count would therefore be expressed as 9.14.19.5.0. In B11 is expressed another distance-number, 10.0, which is

COPAN : STELA H.

followed, in C11b and B12a, by the Calendar-round date 4 Ahau, 13 Yax, and, in B12b and C12a, by glyphs indicating the end of Katun 15. Calculation will prove that the distance-number 10.0, added to the Initial date, 9.14.19.8.0, 12 Ahau, 18 Cumhu, leads to 9.15.0.0.0, 4 Ahau, 13 Yax. The glyphs C12b and B13a record another Calendar-round date, 12 Ahau, 13 ?, but, as the month-sign and succeeding glyphs are defaced, it is impossible to relate it to the rest of the inscription. The remaining face presents no decipherable glyphs, except the Lahuntun-sign in D12b. The monolith was probably erected to mark the conclusion of a Hotun-period on 9.15.0.0.0, 4 Ahau, 13 Yax (*c.* 202 A. D.).

No. V. *North-west corner of the room.* Plaster cast of Altar T. This is an irregular quadrangular block, the greatest dimensions being 6 feet 3 inches, by 4 feet 5 inches, by 2 feet 6 inches. The upper surface and one side are occupied by the figure, in relief, of a large alligator, with out-stretched legs, and eight subsidiary seated human figures. The top is so weathered that the design is difficult to trace, and the column of glyphs down the crocodile's back is quite illegible. The tail of the animal, and two of the subsidiary figures, occupy the space on the North (now the East) side of the altar. On the opposite side is a double column of glyphs between two pairs of seated figures. Each of the remaining sides shows a row of four human or monstrous figures, also in a seated position. The only decipherable glyphs are on the side first mentioned, facing the centre of the room. Here the heads of the two seated figures are formed each by the day-sign Caban. In the head-dress of the figure to the left, the numeral 6 is barely decipherable, and this figure bears in its hand the month-sign 10 Mol. The combination, therefore, expresses the Calendar-round date 6 Caban, 10 Mol, which was of such peculiar importance at the site of Copan that it is recorded on no less than eight of the monuments. Its position in the Long Count is elsewhere fixed as 9.16.12.5.17. The figure on the right expresses, similarly, the date 4 Caban, 10 Zip. No distance-number is shown, but the date 4 Caban, 10 Zip, falls exactly one Katun later than 6 Caban, 10 Mol, and occupies, therefore, the position of an 'anniversary'. So regarded, its position in the Long Count would be 9.17.12.5.17, and this is probably the date in commemoration of which the altar was erected (*c.* 254 A. D.).[1]

No. VI. *North-east corner of the room.* Plaster cast of Altar Q. This monument is a rectangular block of stone, 4 feet 8 inches

[1] It is worthy of note that the glyph upon which this figure is seated can be read as 'End of a Katun'.

square and 2 feet 5 inches high. Round the sides are sculptured in bold relief rows of human figures, seated cross-legged on glyphs, four figures on each side. On what may be regarded as the front of the altar, the figures face inward, and in the centre is carved the Calendar-round date 6 Caban, 10 Mol, so important at this site (see p. 63). As remarked above, the position of this date in the Long Count is elsewhere fixed as 9.16.12.5.17. The upper surface of the altar is occupied by 36 glyphs, arranged in six columns. This inscription is interesting since it includes two undoubted errors on the part of the ancient sculptor. The decipherable glyphs are as follows :

| | |
|---|---|
| A1–B1 | 5 Caban, 15 Yaxkin. |
| B3–A4 | 8 Ahau, 18 Yaxkin (3 days later). |
| A6 | the distance-number 7.12 (an error for 7.13). |
| C1–D1 | 5 Ben, 11 Muan (to which the corrected distance-number leads). |
| C6 | Katun 17 (i. e. 9.17.0.0.0, 13 Ahau, 18 Cumhu). |
| D6–E1 | 6 Ahau, 13 Kayab. |
| E5 | the distance-number 3.4. |
| E6 | 5 Kan, 13 Uo (an error for 5 Kan, 12 Uo). |

If the Glyph C6 is correctly read as 'Katun 17', the rest of the dates can be given their positions in the Long Count. Thus, 6 Ahau, 13 Kayab, in D6–E1, is almost certainly 9.17.5.0.0, and, since it marks a Hotun-ending, is probably the date of the monument (*c.* 247 A. D.). The final Distance-number, leading to 9.17.5.3.4, 5 Kan, 12 Uo, is probably a short excursion into the future. The two mistakes are interesting : in the first case the sculptor has put 12 for 13, in the second, 13 for 12. The first error is clear, since the Distance-number 7.12, reckoned from 8 Ahau, 18 Yaxkin, does not lead to 5 Ben, 11 Muan, but to 4 Eb, 10 Muan, the day before. The second error is even more obvious, for the day Kan can never fall upon the 12th of the month (see p. 15).

No. VII. *North centre of the room.* Altar R (the original monument). This is a rectangular block of stone, measuring 3 feet 4 inches by 2 feet 8 inches. On one of the longer sides is carved a magnificent representation of the head of the Death-god. The inscription starts on the short side facing the West of the gallery, with the Calendar-round date 6 Caban, 10 Mol, which, as noted on p. 63 and above, was evidently an important date at Copan. Elsewhere this date is expressed in the Long Count as 9.16.12.5.17, 6 Caban, 10 Mol. The next decipherable glyph is H2, the sign of the planet Venus. Only one more date is recorded, viz. 7 Ahau, 3 Zip in J2–K1 ; there is no Secondary Series expressed, and it cannot with certainty be brought into

relation with the other date. It is generally supposed that the first date is that of the monument (*c.* 234 A. D.). (Pl. V.)

No. VIII. *Against the wall by Wall-case 26.* Plaster cast of Stela I. The Stela measures 8 feet 10 inches in height, and 3 feet 3 inches in greatest breadth. On the face is sculptured a standing human figure in flattish relief, wearing a mask, ceremonial dress, and rich ornaments. On his head are the three ornaments associated with the Sun-god (see p. 37, fig. 10), and he holds the snake-form of the 'Bar'. The other three sides are covered with glyphs. On the back, following an Introductory glyph, is the Long-Count date 9.12.3.14.0, 5 Ahau (8 Uo, effaced) (A3–B5 and A8). The inscription on the original North side (now facing West) opens with the Calendar-round date 10 Ahau, 13 Chen.[1] This is followed, in C3, by a glyph which records 'End of Katun 6'. Now in the course of the current Cycle no Katun ended on a day 10 Ahau, 13 Chen, but the 6th Katun of the previous Cycle (i. e. 8.6.0.0.0) did in fact terminate on that date. It is possible that here we have a reference to a date long past.[2] In order to elucidate the contemporary date of this monument, it is necessary to allude to another which is not represented in the present exhibition. Closely associated with Stela I is an altar bearing an inscription which, commencing with a Secondary Series, 1.4.0, records the date 3 Ahau, 3 Xul, 'End of a Hotun'. If this Secondary Series, 1.4.0, be reckoned from the Initial date of the Stela, it will be found to reach the date 9.12.5.0.0, 3 Ahau, 3 Xul, which is the concluding day of a Hotun. This date is probably the date in celebration of which both the Stela and the associated altar were erected (*c.* 148 A. D.).

No. IX. *Against the wall, by Wall-case 27.* Plaster cast of Stela 6. This small Stela, about 7 feet 4 inches in height, bears on its face a human figure in relief, clad in ceremonial dress, and holding the 'Bar'. The back and sides are covered with glyphs. On the back is an Introductory glyph and an Initial Series, the latter reading 9.12.10.0.0, 9 Ahau, 18 Zotz, end of a Lahuntun (A3–B4a and B6b–A7b). Following this is the day 8 Ahau, which possibly refers to the terminal day of the current Katun (viz. 9.13.0.0.0, 8 Ahau, 8 Uo). The Initial Series probably expresses the date which the Stela was erected to commemorate (*c.* 153 A. D.).

[1] This sign might be read as Yax, Zac, or Ceh, but it bears a closer resemblance to Chen.

[2] Morley reads this Calendar-round date as 10 Ahau, 13 Ceh, but in his interpretation he makes no allusion to Glyph C3. No reading which fails to account for this period-ending can be correct.

No. XII. *At the Northern end of the West wall.* Plaster cast of Stela P. This monument measures 10 feet 7 inches in height, and has a greatest breadth of 2 feet 7 inches. The face is carved in the form of a standing human figure, clad in ceremonial dress and ornaments, and holding the snake-form of the 'Bar'. The relief is low and flat, compared with Stelae such as H, but the quality of the carving in detail is excellent. The remaining three sides are covered with inscriptions. Each is headed by an Introductory glyph, but only that on the back is followed by an Initial Series. This reads as follows: 9.9.10.0.0, 2 Ahau, 13 Pop, end of a Lahuntun (A3–A5, B6–B7a). No other dates are decipherable, and it is probable that this monolith was erected to mark the close of the Lahuntun period recorded above (*c.* 94 A. D.).

## COPAN. WALL-CASES

*Wall-case 14. In the front of the case* is a plaster cast of Stela 11, oval in section, and measuring 41 inches in height (breadth 18½ inches, depth 11 inches). On the front is carved a richly-dressed human figure, with head turned to the left, holding the 'Bar'. On the back is a series of glyphs, of which the first only is intelligible, and records the day 6 Ahau. Most of the monuments discovered in the immediate neighbourhood bear dates between the 17th and 18th Katun after the close of Cycle 9, and the monument is late in style. On these grounds, admittedly slender, it has been conjectured that the Stela was erected to mark the close of the Hotun-period 9.17.5.0.0, 6 Ahau, 13 Kayab (*c.* 247 A. D.).

*Wall-case 19.* On the back of the case are plaster casts showing the inscriptions on the East and West sides of Stela N. Since this monolith measures more than the height of the case, each inscription is shown in two portions. The Stela itself is 11 feet 6 inches high by 4 feet 2 inches broad, and is the most elaborately carved of all the monuments at Copan. On each of the two broader faces is sculptured a standing human figure, richly clad and ornamented, and holding the snake-form of the 'Bar'. The inscription commences with the Initial glyph on the East side (to the left of the spectator). Following this is the Initial Series 9.16.10.0.0, 1 Ahau, 8 Zip (Glyphs 2–7 and 15). This provides another instance of a mistake on the part of the sculptor, since this Initial Series leads, not to 1 Ahau, 8 Zip, but to 1 Ahau, 3 Zip. It seems clear that the month-numeral should consist of three dots alone, and that the addition of the bar (=5) is an error. The West side of the monument bears an inscription which has afforded material for much discussion.

COPAN: FACE OF ALTAR R, THE HEAD OF THE DEATH-GOD.

Glyphs 10–14 appear to contain a Secondary Series reading 14.17.19.10.0.0 (reversed). If all these glyphs are component parts of one series, they include a numerical term one place higher than the Cycle, called for convenience the Great-Cycle, equal to 20 Cycles (see p. 18). The period involved in this Distance-number is enormous, expressing as it does a count of 42,908,400 days, or over 117,557 years. Glyph 16 is clearly 1 Ahau, and Glyph 17 might possibly stand for 8 Chen. The combination would record a Calendar-round date which cannot be related to the rest of the inscription. If Glyph 17 is not a month-date, then the preceding 1 Ahau is probably a repetition of the date recorded in the Initial Inscription. The problems involved in this inscription afford an excellent field for the research-worker, but can hardly be discussed within the limits of a guide. In any case it is the Initial Series which probably refers to the erection of the monolith, viz. the Hotun-ending 9.16.10.0.0, 1 Ahau, 3 Zip (*c.* 232 A. D.).

*In the front of the case* is a plaster cast of Altar S, a rectangular block of stone measuring 2 feet 7 inches, by 2 feet 1 inch, by 11 inches. The inscription commences on the side shown *en face*, and reads from left to right. It has been fully discussed in the Introduction, p. 29. The date of the monument is probably 9.15.0.0.0, 4 Ahau, 13 Yax (*c.* 202 A. D.).

*Wall-case 20.* Plaster cast of the upper portion of the inscription on the back of Stela D (see fig. 6). This monolith measures in its entirety (above ground) 12 feet in height, with an average breadth of 3 feet 6 inches. The front of the Stela is sculptured to represent a standing human figure, wearing a mask and ceremonial dress, and holding the ' Bar '. The sides are ornamented with elaborate carving, scroll-work enclosing masks, and subsidiary figures. The glyphs on the back are extremely complex, and resemble those on the Monolithic Animal B at Quiriguá (Wall-cases 15–18), though they are more boldly carved. As in the case of that sculpture, both numerals and period-signs are represented by full figures of men and animals, the month-sign being a colossal mask. Following the Introductory glyph in A1 is the Long-Count date 9.15.5.0.0, 10 Ahau, 8 Chen (B1–B3, C1, and D1). No decipherable dates occur in the remaining seven glyphs which complete the inscription, and it may be concluded that this Stela was erected to commemorate the termination of the Hotun-period 9.15.5.0.0, 10 Ahau, 8 Chen (*c.* 207 A. D.). The glyphs of this Stela constitute a good example of the high level attained by Maya art. The attitudes of the component figures are extremely complex and supremely difficult to reproduce in relief-carving. Judged in relation to the stage of material culture represented by Maya

civilization as a whole, they constitute an imaginative and technical triumph.

*Wall-cases 21 and 22. On the back of the case* are exhibited three plaster slabs, representing the two sides and one end of Altar D. This monument measures some 4 feet 11 inches by 2 feet 1 inch, and bears, on one of its longer sides, an excellent representation of the two-headed Earth-monster (see p. 37). The main head of the monster holds in its open jaws the head of the Sky-god; the other head is shown with the combined attributes of the Sun-god (the ornaments on the head, see fig. 10) and the Death-god (the fleshless lower jaw). The opposite side bears an inscription which, like that on Stela D, described immediately above, is expressed in full-figure glyphs. The interpretation of this inscription is not quite certain; the first glyph appears to record the day 13 Ahau; the fourth may read 8 Zac, though this is by no means certain. If the Calendar-round date 13 Ahau, 8 Zac, is in fact expressed, its position in the Long Count is probably 9.16.13.9.0, and, as there are no other dates recorded on the altar, this may be the date of its dedication (236 A. D.).

*In the front of these cases* is a cast of the inscription on Altar U, a block of stone measuring, approximately, 5 feet, by 2 feet, by 3 feet. One of its longest sides (not shown) is carved in the form of a huge grotesque face. The remaining sides exhibit glyphs, including dates, but without an Initial Series. In the position in which the cast of the altar is exhibited, the glyphs to be read first are probably those on the top, and they should be read, as usual, in pairs of vertical columns. Next follow the two glyphs on the left-hand side. Then the long inscription facing the spectator. Finally the two glyphs on the right-hand side. The inscription as a whole has not yet been satisfactorily interpreted, and cannot be discussed fully in a short guide. Many of the most important glyphs are seriously defaced, and much conjectural restoration is necessary before an interpretation can be attempted, and it must be admitted that such readings as have been proposed are more ingenious than convincing. The inscription starts on the upper surface with the Calendar-round date 3 Caban, 0 Pop (a New Year's Day, possibly 9.15.9.10.17 in the Long Count). On the right-hand side is a Cycle and Katun glyph (I1–J1) with defaced numerals, forming a Secondary Series. The inscription on the vertical face of the monument as exhibited commences (K1–L1) with a date which is badly damaged, but which probably reads 6 Caban, 10 Mol (for the importance of this date at Copan see pp. 63–4). This probably occupies the position 9.16.12.5.17. Other Calendar-round dates are: 9 Ik, ? Mol (L5–M1); 4 Ahau, 13 Ceh (N4, and repeated

in O1–P1); and 3 Eb, 0 Pop (another 'New Year's Day', in O3–P3). It is impossible to date this monument with any degree of certainty, but it probably belongs to a year not far removed from 9.16.12.5.17, 6 Caban, 10 Mol (234 A. D.), and may even commemorate that very date.

*On the floor of cases 21 and 22.* Plaster cast of a slab, 3 feet 10 inches long, from the Hieroglyphic Stairway. The design represents three jaguar-heads amidst a series of scrolls, and the treatment is singularly free and decorative. The date of the stairway, from evidence provided by the inscription, is assumed to be 9.16.5.0.0, 8 Ahau, 8 Zotz (*c.* 227 A. D.).

*Wall-case 23.* Plaster cast showing the back and two sides of Stela 1. The original monument is about 9 feet in height, but in the cast here exhibited the lowest row of glyphs is omitted, which consists of an unusually elaborate Hotun-ending sign. The face of the monolith is carved to represent a standing human figure, with turban-like head-dress, holding the 'Bar'. The inscription commences on the back with an Introductory glyph, following which is an Initial Series reading 9.11.15.14.0 (A3–A5). The Calendar-round date to which this leads, 11 Ahau, 8 Zotz, is recorded on the North side (spectator's right), in C1–C2. In D5, on the opposite side, is a Distance-number, 14.0, which, reckoned backwards from 9.11.15.14.0, 11 Ahau, 8 Zotz, leads to 9.11.15.0.0, 4 Ahau, 13 Mol, and this date is recorded in D6. This, being a Hotun-ending, is probably the contemporary date of the monument (138 A. D.).

*Wall-case 24.* At the back of the case is a series of plaster casts showing the inscription, or rather that portion of it which is not defaced, on the two sides of Stela C. This monument measures approximately 11 feet 10 inches high by 3 feet 6 inches broad. The front and back are each carved to represent a standing human figure in ceremonial dress, while down each side runs a column of glyphs. Owing to the height of the monument, the inscription on the South side is exhibited in two columns; that on the North side is shorter, owing to the fact that the lower glyphs are completely defaced. The inscription is distinctly abnormal. Though each column of the inscription is headed by an Introductory glyph, in neither case is this glyph followed by an Initial date, but is immediately succeeded by a glyph (with the numeral coefficient 11) which has been interpreted to mean a 'Great-great-cycle' (see p. 18 and fig. 7 *b*). The assumption that the Maya recorded a period of time so immense does not rest on very secure foundations, and it is quite possible that this glyph is capable of explanation on other grounds. In any case the question is too controversial to be discussed in a guide. The only portions of the inscription which

can be interpreted with any degree of confidence occur as follows. On the South side :

| | |
|---|---|
| A5–A6 | the Distance-number, 11.14.5.1.0. |
| A7b–A8a | 6 Ahau, 18 Kayab. |
| A9 | 6 Ahau, 13 Muan. |

The Distance-number will be found to lead from the first of the two Calendar-round dates to the second. The date 6 Ahau, 13 Muan, is assumed to hold the position in the Long Count of 9.16.12.13.0. The North side records only Calendar-round dates as follows :

| | |
|---|---|
| B11 | 5 Ahau, 18 Uo (conjectured 9.16.19.2.0). |
| B2b–B3a | 5 Ahau, 8 Cumhu (conjectured 9.17.2.0.0). |
| B7 | 4 Ahau, 18 Uo (conjectured 9.17.11.5.0). |
| B14 | 4 Ahau, 18 ?Muan (conjectured 9.17.12.0.0). |

The last is supposed to be the contemporary date of the monolith (*c.* 254 A. D.), but the reading of the inscription can only be regarded as in the highest degree conjectural.

*In the front of the case.* Plaster cast of Altar K. This monument is a rectangular block of stone, approximately 2 feet 6 inches square and 1 foot high. The inscription commences with an Introductory glyph followed by an Initial date. The latter, though somewhat weathered, can be read as 9.12.16.7.8, 3 Lamat, 16 Yax (B1–D1). There are no other decipherable glyphs except Q2 and R2, each of which denote '4 Katuns'. The connexion of each of these with the rest of the inscription is obscure. The day-sign Lamat was one of the five on which a Venus-period ended (see p. 26), and as the Venus-sign appears in the Introductory glyph, the altar may have been erected to commemorate the conclusion of a Venus-period on 9.12.16.7.8, 3 Lamat, 16 Yax (*c.* 160 A. D.).

*Wall-case 25. In the front of the case.* Plaster cast of Altar Z. This is a rectangular block of stone, 2 feet 4 inches, by 2 feet, by 2 feet 2 inches. On one side (remote from the spectator) is carved a colossal grotesque face ; on the other three are glyphs. The inscription commences on the left-hand side of the Altar as exhibited, with the Secondary Series 1.8.1 (A1–B1), followed by the Calendar-round date 13 Ahau, 18 Cumhu, and an ending sign (B2–B3). This Calendar-round date is recorded on two neighbouring monuments with the Long-Count value 9.17.0.0.0, and it may be assumed that it has the same value here. The Distance-number 1.8.1, reckoned backwards from 9.17.0.0.0, 13 Ahau, 18 Cumhu, reaches 12 Cauac, 2 Zac, probably the starting-point of the calculation. It is reasonable to conclude that this monument was erected to commemorate the end of the 17th Katun of the current cycle (*c.* 242 A. D.).

*Above the Southern doorway.* Plaster cast of a large composite slab in four pieces, bearing a relief design, boldly carved, of scrolls in a cruciform arrangement, with, in the centre, the Rain-god

Fig. 19. Copan: Figure of the Maize-god.

sitting cross-legged and bearing an offering in his right hand. From the Western Court at Copan.

*Above Wall-cases 19–24.* Series of original sculptures.

A. A colossal head of unusually fine workmanship, originally part of the external ornamentation of Temple 20.

B. Head of the Sun-god, recognizable by the filed teeth. From the lower chamber in Temple 16.

C. Bust of the Maize-god. This, one of the most remarkable examples of Maya sculpture in the round, originally formed part of the exterior decoration of Temple 22. (Fig. 19.)

D. Head of the Moan-bird, from the wall of the covered stairway, Temple 20.

E. Head (in the round) wearing a peculiar mask over the eyes. From the lower chamber in Temple 16.

The Temples to which these sculptures originally belonged surround the ' Eastern Court ', and appear to have been erected between 9.16.5.0.0 and 9.17.0.0.0 (*c.* 227–42 A. D.).

## COPAN. NORTH-EAST LANDING

*On the South Wall,* in the centre are exhibited, in two sections, one below the other, the original stone slabs which formed the risers of the step leading to the inner chamber of Temple 11. The design consists of two series, each of five human figures, carved in bold relief, seated cross-legged upon glyphs and facing inward. The figures are carved in the same style as those appearing on Altar Q (see p. 63). In the centre is a double column of glyphs, headed by the Calendar-round date 6 Caban, 10 Mol, already noticed as being of considerable importance in the history of Copan (see p. 63). This must hold the Long-Count position 9.16.12.5.17, and represent the date of the Temple (*c.* 234 A. D.).

*Right and left of the last.* Two original slabs (fragmentary) from the East side of the inner doorway of Temple 11.

The larger (left) shows a human figure, with head to right, bearing a mask in the left hand.

The smaller (right) shows two grotesque figures, anthropomorphic (probably the Rain-god), and animal.

No glyphs occur on either.

*Note*

The chronological sequence of the monuments exhibited is as follows :

| | | | | | |
|---|---|---|---|---|---|
| Stela P | 9.9.10.0.0, | 2 Ahau, | 13 Pop | 94 A.D. | Floor XII. |
| Stela 1 | 9.11.15.0.0, | 4 Ahau, | 13 Mol | 138 A.D. | Wall-case 24. |
| Stela I | 9.12.5.0.0, | 3 Ahau, | 3 Xul | 148 A.D. | Floor VIII. |
| Stela 6 | 9.12.10.0.0, | 9 Ahau, | 18 Zotz | 153 A.D. | Floor IX. |
| Altar K | 9.12.16.7.8, | 3 Lamat, | 16 Yax | 160 A.D. | Wall-case 24. |
| Stela J | 9.13.10.0.0, | 7 Ahau, | 3 Cumhu | 173 A.D. | Floor I. |
| Stela H [1] | 9.14.19.5.0, | 4 Ahau, | 18 Muan | 202 A.D. | Floor II. |

[1] Morley dates this Stela 9.17.12.0.0, 4 Ahau, 18 Muan, which would make it contemporary with Stela C, the latest but one of the monuments mentioned in this list.

| | | | | | |
|---|---|---|---|---|---|
| Stela A | 9.15.0.0.0, | 4 Ahau, | 13 Yax | 202 A.D. | Floor III. |
| Altar S | 9.15.0.0.0, | ,, | ,, | ,, | Wall-case 19. |
| Stela D | 9.15.5.0.0, | 10 Ahau, | 8 Chen | 207 A.D. | Wall-case 20. |
| Slab | (9.16.5.0.0, | 8 Ahau, | 8 Zotz | 227 A.D.) | Wall-cases 21–2. |
| Stela N | 9.16.10.0.0, | 1 Ahau, | 3 Zip | 232 A.D. | Wall-case 19. |
| Altar R | 9.16.12.5.17, | 6 Caban, | 10 Mol | 234 A.D. | Floor VII. |
| Altar U | ,, | ,, | ,, | ,, | Wall-cases 21–2. |
| Step-riser, Temple 11 | ,, | ,, | ,, | ,, | North-east landing. |
| Altar D′ | 9.16.13.9.0, | 13 Ahau, | 8 Zac | 236 A.D. | Wall-cases 21–2. |
| Altar Z | 9.17.0.0.0, | 13 Ahau, | 18 Cumhu | 242 A.D. | Wall-case 25. |
| Altar Q | 9.17.5.0.0, | 6 Ahau, | 13 Kayab | 247 A.D. | Floor VI. |
| Stela 11 | ,, | ,, | ,, | ,, | Wall-case 14. |
| Stela C | 9.17.12.0.0, | 4 Ahau, | 18 Muan | 254 A.D. | Wall-case 24. |
| Altar T | 9.17.12.5.17, | 4 Caban, | 10 Zip | 254 A.D. | Floor V. |

## CHICHÉN ITZÁ. WALL-CASES

*Wall-case 25. On the back of the case.* Plaster cast of the carved stone lintel in the building known as Ak at 'Cib, measuring 3 feet by 2 feet 9 inches. The design shows a human figure, seated upon a divan, with head turned towards the left. There are no decipherable dates in the inscription, but the slab belongs to the early period of Yucatec art, and may be ascribed to the end of the fifth century A. D.

*Wall-cases 25 and 26. On the back, above.* Plaster cast of a carved wooden beam in Temple A of the Ball-court (length 6 feet 9 inches). A human figure on the right, armed with spears and a spear-thrower, does obeisance to a figure on the left seated within a sun-disk. The style is that of the Toltec period (11th–12th centuries A. D.).

*Wall-case 26.* Plaster cast of a carved stone pilaster, 7 feet 6 inches high, in Temple A of the Ball-court. The design consists of human figures, with mosaic head-dresses, carrying spears and spear-throwers. The style is that of the Toltec period (11th–12th centuries A. D.).

## CHICHÉN ITZÁ. FLOOR EXHIBIT

No. XIII. *On the North wall to the West of the doorway.* Plaster cast of the central portion of the sculptured design on the back wall of Chamber E attached to the Ball-court. The carving, which covers three sides of the chamber, and extends over the roof, has as its central figure a masked personage, over whom towers a feathered snake. On either side, above and below, are depicted rows of warriors, all facing inwards, richly clad in a great variety of costumes, some with masks, and carrying spears and spear-throwers. In the top register, over

the central figure, is a personage seated in a sun-disk. Many of the figures are accompanied by glyphs, which, however, are not in the normal Maya style. None appear to express dates, and they may record the personal names of the individual figures which they accompany. At the bottom runs an ornamental band of the water-plant motive, with grotesque masks and small figures of men and birds. The meaning of the scene is not quite clear, but it may represent the obsequies of some great chief. The style, both of the art and the glyphs, shows very strong Toltec influence, and the building undoubtedly belongs to the Toltec period (11th–12th centuries A.D.).

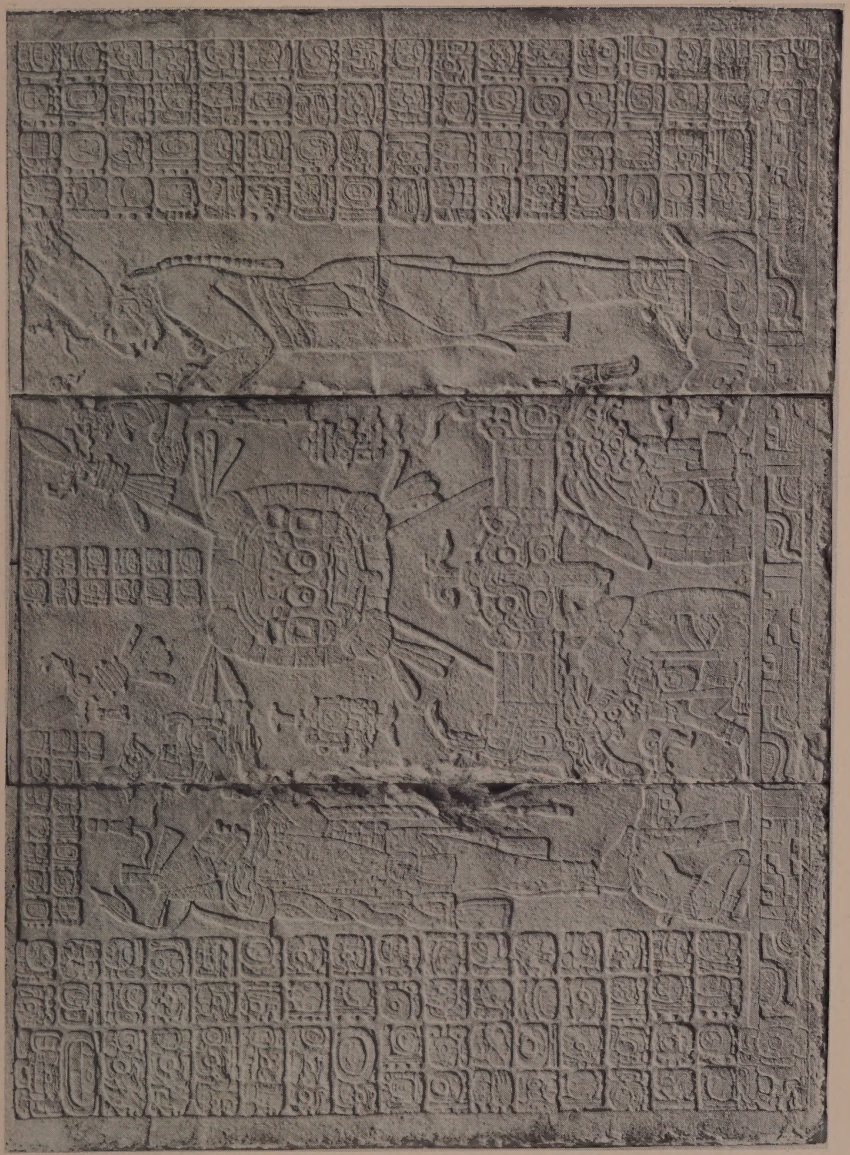
## IXKUN. FLOOR EXHIBIT

No. XIV. *On the East side of the North doorway.* Plaster cast of the face of Stela 1. This monument, 12 feet 6 inches high by 5 feet 10 inches broad, is sculptured to represent two human figures confronted, clad in elaborate costumes and holding ornamental staves and bucklers. Between them, at the top, is a double line of glyphs. Below, on either side, is a crouching figure of a prisoner, each with his arms bound behind his back, and above, between, and below these figures runs the main inscription, starting with an Initial date. This date reads 9.0.0.0.0, 6 Ahau, 18 ?. There is some mistake here, since the 9th Cycle ended on 8 Ahau, 13 Ceh. The emendation which produces the least disturbance in the text is 9.5.0.0.0, 11 Ahau, 18 Tzec.[1] Other day- and month-signs follow, but the monument is too defaced to allow their identification. Consequently the terminal date remains a mystery. Morley, having identified the Long-Count date 9.18.0.0.0 on the back of the Stela, refers it to this date (*c.* 262 A.D.). The glyphs between the main figures are headed by a Calendar-round date which probably reads 13 Ahau, 18 Zip, or 13 Ahau, 18 Ceh. The date of the monument is doubtful, and stylistic criteria afford no assistance. The general style of the carving is stiff and 'archaic', but this may be due to the relative lack of skill of the 'provincial' sculptor, and it is quite possible that the date 9.18.0.0.0. (*c.* 262 A.D.), may be the contemporary date of the Stela.

## PALENQUE. WALL-CASES

*Wall-cases 27 and 28.* Plaster cast of the inscription on the Hieroglyphic Stairway leading to House C of the 'Palace' (see

[1] Morley restores 9.18.0.0.0, 11 Ahau, 18 Mac, because he found this date recorded on the back of the Stela. The month-sign here, however, can hardly be Mac, owing to the presence of a suffix. Moreover, the superfix resembles the superfix of the Tzec-glyph in outline far more closely than the superfix of the Mac-glyph.



Palenque: Triple Slab in the 'Temple of the Sun'.

photograph in Wall-case 29). This inscription, which is four glyph-blocks wide, occupies the treads and risers of three steps, and should be read, as usual, in pairs of columns, downwards. The carving of the glyphs shows great perfection of workmanship, the face-numerals of the Initial inscription being particularly impressive. The Introductory glyph is followed by the Long-Count date 9.8.9.13.0, 8 Ahau, 13 [Pop] (B1–B4). The remainder of the inscription is rather obscure, partly owing to the damaged condition of the lowest step. More than one Distance-number can be observed, also the day 6 Lamat (B6b, lower half), indicated by the Venus-sign variety of the glyph. But the terminal day of the calendrical computation is not clear, and therefore the date of the Stairway is uncertain ; it probably belongs to the second half of the second century A. D.

*Wall-cases 29 and 30.* Plaster casts of two carved stone slabs, originally set in the wall on either side of the doorway of the ' Temple of the Cross '. The slab in Wall-case 29 shows the profile view of a human figure in gorgeous costume and ornaments, with a head-dress consisting of a grotesque mask, surmounted by a heron holding a fish. In his hand he holds another mask. The whole figure is extremely dignified, and the treatment of the feather-ornament is particularly beautiful. The slab in Wall-case 30 also bears the relief-design of a human figure in profile. This figure wears a jaguar-skin, and an elaborate head-dress representing the Moan-bird. He is apparently engaged in blowing a smoke-offering through a tube. No dates appear in the glyphs carved on either of the slabs, but a long inscription on the ' Tablet of the Cross ' inside the temple appears to refer to the second half of the second century A. D. as the period when it was sculptured. These slabs are probably contemporary with the ' Tablet '.

*Above the East doorway.* Plaster cast of the stucco ornamentation on the face of the vault in the passage leading to the ' Enclosed corridors ' of Houses G and H in the ' Palace '. In the centre of the false arch is a human head and shoulders, looking downwards ; on either side are the trailing coils of the water-plant motive.

*Wall-cases 1–3.* Plaster cast of the triple stone slab which formed the principal ornament in the ' Temple of the Sun '. The design, which is admirably conceived and executed, represents a shield, bearing the face of the Sun-god, slung from two crossed stone-bladed spears, which rest on a ' Bar '. This ' Bar ' is, in turn, borne by two grotesque supporters. The delineation of these figures, in a three-quarter posture extremely difficult to express in relief-carving, is a triumph on the part of the primitive

artist. On either side of the emblem of the Sun-god, or War-god, is sculptured the figure of a priest engaged in making an offering of a small image. Each stands upon a crouching grotesque supporter, but they differ in size and costume. The larger, and therefore presumably more important, figure on the right is one of the most beautiful known in Maya sculpture. The purity and restraint of the line, the dignity of the pose, and the correct treatment of the shoulders in pure profile, combine to render this figure a fine artistic achievement when judged by the highest standards. The inscription on this slab is of interest for more than one reason. In the first place, it is longer than any of those described previously. In the second, it starts with an Initial date so early that it must be regarded as ' mythological '. These two characteristics are shared by other monuments at Palenque, viz. the triple slabs in the ' Temple of the Cross ' (not exhibited), in the ' Temple of the Foliated Cross ' (Wall-cases 4–6), and especially the Temple of Inscriptions (not exhibited), which is the longest monumental inscription preserved in its entirety in the Maya region.[1]

In a guide it is only possible to deal with this inscription in the shortest terms, and such treatment means the omission of many interesting points. The salient features are as follows. Following an Introductory glyph is the Long-Count date 1.18.5.3.6, 13 Cimi, 19 Ceh (A3–B9). This date, approximating to 2819 B.C., must be regarded as mythological.[2] Next, in A13–B13 is the Distance-number 1.2.11 (reversed), which carries the count to 1.18.6.5.17, 8 Caban, 5 Muan (not expressed). C7–D8 repeat the Initial Series, 1.18.5.3.6 (13 Cimi, 19 Ceh). C14–C16 express another Distance-number, 9.12.18.5.16 (also reversed), which carries the count from 4 Ahau, 8 Cumhu (O2–N3) to 2 Cib, 14 Mol (N4–O4, i.e. 9.12.18.5.16, in the Long Count). This is followed, in O7–N8, by the next day (9.12.18.5.17), 3 Caban, 15 Mol. These two days were of importance in the history of Palenque, since they are repeated in the

[1] The hieroglyphic stairway at Copan, discovered since Maudslay's expeditions, originally provided an even longer series of glyphs, but a land-slide had occurred here. Unfortunately this fact was only recognized late in the process of excavation. Had the excavation been conducted from its inception with a knowledge of the true conditions, a restoration of the inscription, by the exercise of the greatest care, should have been possible. Unluckily the component blocks were removed without the meticulous record which the circumstances demanded, and there is little chance, in the light of our present imperfect knowledge, of reconstructing this wonderful inscription, which is estimated to be composed of some 2,500 glyphs. The unhappy fate of this monumental record demonstrates the narrowness of the line which divides excavation from destruction, and emphasizes the responsibilities of the excavator. One of the salient features of Maudslay's extensive pioneer researches is constituted by the fact that they, in no single case, resulted in the destruction of evidence.

[2] As will be seen later, the probable date of the monument is about 114 A.D.

inscription recorded on the slabs in the 'Temple of the Foliated Cross' (see p. 78). At this point there is a break in the continuity of the dating: O16–Q2 record the Distance-number 7.6.12.3, which, counted from 12 Ahau, 8 Ceh (P2–Q2), reaches 9 Akbal, 6 Xul (P6–Q6). The position of these two dates in the Long Count can be fixed by reckoning backwards from the terminal date of the inscription, and are, respectively, 9.3.1.15.0 and 9.10.8.9.3. The fact that the latter was of some importance can be inferred from its appearance at the head of the short subsidiary inscription above the head of the priest on the left, in E1, F1). This is followed in G2–H2 by the date 13 Ahau, 18 Kankin, which records the next Lahuntun-ending, 9.10.10.0.0.

The next Distance-number is recorded in P11–Q11, and reads 6.2.18 (reversed). This, *deducted* from the date last expressed, viz. 9.10.8.9.3, 9 Akbal, 6 Xul, should register 1 Chicchan, 18 Zotz, whereas P12–Q12 gives 2 Cimi, 19 Zotz, one day later. In this case the Distance-number is probably a mistake for 6.2.17. This date, 2 Cimi, 19 Zotz, 9.10.2.6.6, in the Long Count, occurs also implicitly in the inscription in the 'Temple of the Foliated Cross' (see p. 79). Another mistake on the part of the sculptor is contained in the next Distance-number, 1.8.12 (reversed, P14–Q14). In this case a bar, the equivalent of 5, appears to have been omitted from the Kin-coefficient, which should read 17 instead of 12. With this correction, 1.8.17, counted onwards from 9.10.8.9.3, 9 Akbal, 6 Xul, reaches 13 Ahau, 18 Kankin, which is recorded in Q14–P15, and further designated, in Q15, as the terminal date of a Tun 10. Calculation proves the fact that the Long-Count date 9.10.10.0.0 fell upon the day 13 Ahau, 18 Kankin; and this, as the last date in the inscription, and also as the terminal date of a Hotun-period, is probably the contemporary date of the monument (*c.* 114 A. D.). As noted above, it is repeated in the subsidiary inscription above the head of the priestly figure on the left (G2–H2). One other Calendar-round date is expressed in the short series of glyphs immediately above the shield-emblem in the centre of the relief design, the date 8 Oc, 3 Kayab. This also was evidently a date of some importance, since it is recorded twice in the relief in the 'Temple of the Foliated Cross' (see p. 79), where it can be shown to hold the position in the Long Count of 9.12.11.12.10. (Pl. VI.)

*Wall-cases 1 and 2. Floor.* Plaster cast of detail of the stucco ornamentation on the base of pier C of House D in the 'Palace'. (Length 5 feet 3 inches.) The design represents the trailing coils of the water-plant motive, with the mask of the Rain-god, shown in profile, at either end,

*Wall-cases 4–6.* Plaster cast of the triple stone slabs in the 'Temple of the Foliated Cross'. These slabs, which constituted

the principal adornment of the shrine, are sculptured with a design in low relief exhibiting almost the same perfection of style as the slabs in the ' Temple of the Sun ' described above (p. 75). The design is arranged on similar lines. In the centre is a cruciform object which is in fact the conventional representation of a maize-plant (the head of the Maize-god can be recognized in the cobs which terminate the lateral branches). The plant rests upon the head of the Rain-god, and upon its vertical branch is perched a serpent-bird, the emblem of the High god Kukulkan. (In addition to the serpent-mask worn by the bird, a serpent's head, reversed, is included in its wing : see fig. 13, where this element is emphasized in heavy outline.) On either side is a priest ; the figure to the left is the larger, and ranks second in beauty of line only to the priestly figure on the right-hand slab in the ' Temple of the Sun '. He stands upon a grotesque mask, and is making the offering of a small image. The priest to the right stands upon a shell (the symbol of the moon) and holds the mask of the Rain-god.

The inscription is of great interest for the reasons detailed on p. 76, and bears a close similarity to that, already described, on the slabs in the ' Temple of the Sun '. Following the Introductory glyph, a Long-Count date is recorded in AB3–A9, 1.18.5.4.0, 1 Ahau, 13 Mac. In B12–A13 appears a Distance-number 14.19 (reversed), followed, immediately, by the Calendar-round date, 1 Cauac, 7 Yax, to which it leads (1.18.6.0.19, in the Long Count). C3–D4 records another Distance-number, 1.14.14.0, and this is followed, in C7–D8, by glyphs signifying ' End of Cycle 2, 2 Ahau, 3 Uayeb '. In fact this Distance-number, reckoned from the Initial date, will be found to reach 2.0.0.0.0, 2 Ahau, 3 Uayeb. In D14, C15, the Calendar-round date of the Initial Series is repeated, 1 Ahau, 13 Mac, and D15–D17 record another Distance-number, 7.7.7.3.16. At this point the inscription becomes obscure ; this Distance-number is not normal, because it is not written reversed. If it is a true Distance-number, to be reckoned from the date last recorded (1 Ahau, 13 Mac), it leads to 2 Cib, 14 Yax (9.5.12.7.16, in the Long Count). But the next recorded Calendar-round date is 2 Cib, 14 Mol, in L1–M1, to which the inscription in the ' Temple of the Sun ' gives the Long-Count value 9.10.5.10.16. This again is followed, as in the ' Temple of the Sun ' inscription, by the next day, 3 Caban, 15 Mol (M5–L6). The fact that these two dates occupy a prominent position in two inscriptions bears witness to their historical or religious significance as far as the site of Palenque is concerned.

Another puzzle now arises ; glyphs I15–M15 appear to record the Distance-number 3.9.6, for which there seems to be no explanation. It seems probable that the sculptor was in this

PALENQUE: THE EAST COURT OF THE 'PALACE', WITH TOWER.

PLATE VII

case guilty of a mistake, and transferred a bar (the equivalent of 5) from the Uinal coefficient to the Kin coefficient. On this supposition, the number should read 3.4.11, which, *subtracted* from 9.10.5.10.17, 3 Caban, 15 Mol, leads to 9.10.2.6.6, 2 Cimi, 19 Zotz. This date, though unexpressed here, occupies a prominent position in the 'Temple of the Sun' inscription. If the suggested error be admitted, the rest of the inscription is clear; the next Distance-number, 2.9.6.4 (reversed), reckoned from 9.10.2.6.6, 2 Cimi, 19 Zotz (presumed), leads to (9.12.11.12.10) 8 Oc, 3 Kayab, which is recorded not only in N5–O5, but also in E1–E2 (in the subsidiary inscription immediately behind the back of the priestly figure on the left). This date is also recorded, as noted above (p. 77), in one of the subsidiary inscriptions on the slabs in the 'Temple of the Sun'. The next Distance-number, 6.11.6 (N6–O6, reversed), would lead to 9.12.18.5.16, 2 Cib, 14 Mol, a Calendar-round 'anniversary' of the important date expressed in L1–M1, but it is not explicit in the text. However, if its implicit expression be admitted, the Distance-number which follows, 1.12.4 (O13–N14, reversed), carries the count to (9.13.0.0.0) 8 Ahau, 8 Uo (N15), which the glyph in O15 designates as the terminal day of a Katun 13. This date, 9.13.0.0.0, 8 Ahau, 8 Uo, may be assumed to be the Hotun-ending which the slabs were carved to commemorate, and represents, in our chronology, the year 163 A.D.

*Wall-cases 5 and 6. Floor.* Plaster cast of detail of the stucco ornamentation on the base of Pier F of House D in the 'Palace' (length 5 feet 4 inches). In the centre is the mask of the Rain-god in profile, facing left. The rest of the design consists, in the main, of a very graceful arrangement of the water-plant motive. On the extreme left, however, is a representation of the grotesque head which serves in the inscriptions to express the numeral 6. (See fig. 5.)

*Wall-case 7. On the left.* Plaster casts of four glyph-groups, each from one of the slabs built into the East face of the foundation of House C in the 'Palace'. These do not appear to record dates, and cannot at present be interpreted.

*In the centre.* Plaster cast of a stone wall-slab (length 3 feet 10 inches) in the Western corridor of House E in the 'Palace'. The relief design represents a personage sitting cross-legged upon a jaguar throne, receiving an offering of a feather and mosaic head-dress, which is held by a seated figure to the left. The glyphs cannot at present be interpreted.

*On the right.* Plaster casts of three glyph-groups, each from one of the stone slabs built into the West face of the foundation of House C in the 'Palace'. These glyphs also lack interpretation.

## MENCHÉ. WALL-CASES

*Wall-cases 8 and 9.* In Wall-case 8, upper register, and Wall-case 9, are exhibited plaster casts of the carved stone lintels, 1, 2, and 3, of Temple K.

No. 1, height 2 feet 9 inches, shows a human figure, clad in a very elaborate dress and ornaments, and holding a ceremonial stone-bladed axe. Behind him stands a smaller figure, wearing a fringed robe, and head-dress consisting of a grotesque mask, and carrying a bundle on which is the Kan-sign, perhaps signifying a bread-offering. The inscription commences with the Calendar-round date 11 Ahau, 8 Tzec, a date which, on Stela 11 of this site, is given the Long-Count values of 9.16.1.0.0. It may be regarded as having the same value here, and since no other dates appear to be recorded, it is probably the date of dedication of the lintel (*c.* 223 A. D.).

No. 2, height 2 feet 7 inches, also shows two figures, the larger on the right, with head turned to the left; the smaller in profile on the left, facing the larger. Both are dressed in elaborate ceremonial costume and hold cruciform wands, each of which is topped by a long-tailed bird, head downwards. The larger figure holds one of these in each hand. The inscription commences with the Calendar-round date 4 Ahau, 3 Zotz, which probably holds the position in the Long Count of 9.16.6.0.0, just 5 Tuns later than Lintel 1 (*c.* 228 A. D.).

No. 3, height 2 feet 8 inches, shows two figures in the same relative positions as no. 2, but, instead of the cruciform wands, each carries a ceremonial axe with stone blade. The inscription commences with the Calendar-round date 8 Ahau, 8 Zotz, which probably registers the Hotun-ending 9.16.5.0.0 (*c.* 227 A. D.).

*Wall-case 8. Lower register.* Plaster cast of Lintel 43 from House L (height 3 feet). This shows two standing figures in elaborate dress and ornaments. The larger, on the right, with head to left, holds a kind of standard. The other, much mutilated, faces him, and carries a basket containing the implements of penance (see pp. 41 and 82). The inscription opens with the Calendar-round date ? Cimi, 14 Mac. The position of this date in the Long Count is a matter of guesswork, but it is probably somewhere in Katun 16.

*Wall-case 10. Upper register.* Plaster cast of Lintel 14 of House E (height 2 feet 6 inches). The carving represents two figures, confronted, wearing the usual elaborate ornaments and holding what may be ceremonial spear-throwers. Between them is a large conventionalized serpent, from the open jaws of which emerge the head and hand of a divine figure. The inscrip-

tion records the Calendar-round date 4 Imix, 4 Mol, which is generally supposed to occupy the Long-Count position 9.15.10.0.1 (*c.* 212 A. D.).

*Lower register.* Plaster cast of the lintel of House M (height 3 feet 1 inch). The carving of this remarkable lintel represents a personage, holding a large stone-bladed spear, before whom a subsidiary figure is apparently doing obeisance. The artistic treatment of these two figures, in boldness and freedom of expression, distinguishes this lintel very markedly from the rest of those exhibited in Wall-cases 8–10. Unfortunately the inscription is too mutilated for the date to be deciphered; only the day-sign Imix is discernible.

*Wall-cases 9 and 10. Floor.* Plaster cast of a stone lintel (length 5 feet 9 inches), the original of which was presented by Maudslay to Berlin. Commencing with an Introductory glyph, the inscription records the Long-Count date 9.15.6.14.1, 7 Imix, 19 Zip (A1–D1 and G1). This is a mistake on the part of the sculptor for 9.15.6.13.1, 7 Imix, 19 Zip.[1] The Katun-glyph, combined with a possible ending-sign, occurs in K1, and the day Ahau in L1b. The numeral coefficient to the latter is badly defaced, but it may read 9. If this is correct, these glyphs record the conclusion of a 'Katun 9 Ahau', probably the Hotun-ending 9.15.15.0.0, 9 Ahau, 18 Xul (*c.* 217 A. D.).

## MENCHÉ. NORTH-EAST LANDING

*On the North wall of the North-east landing,* at the opposite end of the Ethnographical Gallery, are exhibited a series of original sculptures from Menché, collected and presented by Maudslay. They consist of lintels from certain of the buildings, and, partly for the sake of completeness, a short description of them is included here. An additional reason is provided by the fact that they include some of the finest examples of Maya art and technique in stone. The artistic qualities of, for instance, the relief numbered III, are beyond question, but would be equally impressive if expressed through the medium of a good cast. Yet it is only the original sculpture which can bring home to the student the technical skill which was required for the production of a monument such as this, with its many grades of relief and perfect combination of broad effect and meticulous detail. This particular lintel is also of interest since it exhibits traces of colour, and it is extremely probable that most Maya carvings were originally painted. (See p. 54.)

*No. I. Original sculpture.* Fragment of the South lintel from House L (known also, according to later notation, as Lintel 41;

[1] 9.15.6.14.1, leads to 1 Imix, 19 Zotz.

height 2 feet). The design, which is boldly carved, shows two standing figures in elaborate dress facing inwards. The larger holds a stone-bladed spear, the sides of which are set with flakes of stone or obsidian. The inscription commences with the Calendar-round date 7 Imix, 14 Tzec. This date, as expressed in the Long Count, is probably either 9.13.11.6.1 (*c.* 174 A.D.), or 9.16.4.1.1 (*c.* 226 A.D.). In the absence of other evidence, the student is obliged to rely upon stylistic criteria. It is clear that this lintel, from the point of view of technique, is more closely related to the lintels 24 and 23 (described below) than to those of which casts are exhibited in Wall-cases 8 and 9. These latter ' straddle ' the later date which the inscription under discussion might be supposed to express (see below), and there is evidence that Lintels 24 and 23 relate to an earlier period. The former of the two dates is therefore the more acceptable, though the question is by no means beyond dispute.

*Nos. III, IV, and V. Original sculptures.* These three should be considered in connexion, since they come from the same building, House G. III is also known as Lintel 24 (height 3 feet 7 inches), while IV and V are portions of the same sculpture (known also as Lintel 23, height 4 feet 2 inches), IV being the horizontal face, V the vertical face, of the same slab. These lintels are of particular interest owing to their combined artistic and technical qualities, and bear significant witness to the proficiency attained by the sculptors of Menché. Lintel III (24) shows two figures confronted, both elaborately dressed (the details of the costume of the figure to the right affords an indication of the skill of the Maya weaver). The left-hand figure is standing, and holds an ornamental staff ; that to the right is in a kneeling position, and is in the act of making an offering of his own blood by drawing a cord, armed with thorns, through his tongue. In the foreground is a basket, containing the implements for tongue- and ear-piercing. The inscription commences with the Calendar-round date 5 Eb, 15 Mac, which might be either 9.13.11.6.1 or 9.16.4.1.1, in the Long Count. Further consideration is only possible in the light of the evidence afforded by the sculptures IV and V. (Pl. VIII.)

Lintel IV—V shows, on its under side (IV) a worshipper, on the right, clad in an elaborate costume and holding a basket containing the implements for ceremonial blood-letting, kneeling before a two-headed snake (fig. 20). The upper head holds in its gaping jaws the issuant head and shoulders of a divine figure, armed with spear and shield. The rear head bears the combined insignia of the Sun- and Death-gods. The arrangement of the glyphs is abnormal ; all the face-signs are turned towards the right, and the inscription evidently reads from right to left.

Menché : Lintel 24.

It commences with the Calendar-round date 5 Imix, 4 Mac, which bears a definite relation to the inscription on the vertical face of the lintel exhibited as No. V. Here the first decipherable

Fig. 20. Menché: Lintel 23.

glyphs compose a Distance-number, 2.2.7.0 (B1–C1), which, reckoned from 5 Imix, 4 Mac, recorded on the horizontal face, IV, leads to 3 Imix, 14 Chen. This date is expressed in F1–E2, and is probably the date which refers to the carving of the lintel. Now the starting date, 5 Imix, 4 Mac, is recorded on

another monument at Menché, with the Long-Count value 9.12.9.8.1, and it is a fair assumption that, as a basis for calculation, it bears the same value here. The terminal date, 3 Imix, 14 Chen, would thus occupy the position 9.14.11.1 (*c.* 194 A. D.).

The lintel exhibited as No. III, which records the Calendar-round date 5 Eb, 15 Mac, and belongs to the same building, may, therefore, be dated to 9.13.17.15.12 (*c.* 181 A. D.).

*Nos. II, VII, and VIII. Original sculptures.* These three, again, must be considered in connexion, since they come from the same building, House F. They are also known, respectively, as Lintels 15, 16, and 17. No. II (height 2 feet 10 inches) represents a kneeling worshipper on the right, clad in rich garments and holding a basket containing the implements of penance. On the left is a serpent, from the open jaws of which emerges the head and shoulders of a divine figure. The inscription commences with the Calendar-round date 4 ? Muluc, 12 Uo. This might occupy one of two positions in the Long Count, viz. 9.13.5.1.9 or 9.15.17.14.9. For stylistic reasons the latter date is the more probable (*c.* 220 A. D.).

Lintel VII (height 2 feet 7 inches) shows a standing figure on the right, holding a stone-bladed spear, in front of whom, to the left, crouches another figure holding, apparently, a fan. The Inscription opens with the Calendar-round date 6 Caban, 5 Pop, which probably occupies the Calendar-round position 9.16.0.13.17 (*c.* 223 A. D.).

Lintel VIII (height 2 feet 3 inches) shows a kneeling figure on the left, making a ceremonial offering of blood by passing a cord through his tongue, before a (? divine) figure, seated on a daïs on the right. No date is recognizable among the glyphs.

*No. VI. Original sculpture.* Stone lintel from House D, height 3 feet 3 inches. This slab is carved with columns of glyphs, including the Calendar-round date 1 Cimi, 14 Muan. The style of the glyphs is rather peculiar, and the position of the date in the Long Count is difficult to fix. The extreme limits of probability are either 9.13.0.13.6 (*c.* 164 A. D.), 9.15.13.8.6 (*c.* 216 A. D.), or 9.18.6.3.6 (*c.* 268 A. D.).

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# APPENDIX

Tables A and B are appended here as an aid to those who wish to enter further into the study of the Maya inscriptions. Table A gives a full round of Katun-endings. The vertical columns of figures show the number of the day Ahau upon which each successive Katun ended, while the right-hand column gives the month-position of the day. The Katun-endings are divided into groups of 20 by transverse lines, each group representing a Cycle. It must be remembered that, owing to the Maya practice of reckoning only elapsed time, the Katuns in each group are numbered, *not* from 1 to 20, but from 0 to 19. The table commences with the day which forms the starting-point of Maya current chronology, viz. 4 Ahau, 8 Cumhu. This represents 0.0.0.0.0 in the Long Count. Counting twenty from this, 3 Ahau, 13 Chen is reached, which represents 1.0.0.0.0, the next number in order being 1 Ahau, 13 Zotz, which is 1.1.0.0.0, and so on. Since most of the dates recorded in the inscriptions fall after the conclusion of the 9th Cycle, the date 9.0.0.0.0, 8 Ahau, 13 Ceh, is, for convenience of reference, marked with an asterisk.

Table B shows, in similar fashion, the Tun-endings, starting with 9.0.0.0.0, 8 Ahau, 13 Ceh. This is followed by 4 Ahau, 8 Ceh, which holds the position 9.0.1.0.0. These Tun-endings are also divided into series of twenty, each representing a Katun. Thus the 21st date in the first column, 6 Ahau, 13 Yaxkin, represents 9.1.0.0.0 ; and the next, 2 Ahau, 8 Yaxkin, represents 9.1.1.0.0.

Each table represents a full round, and, if the transverse lines be disregarded, is applicable to any period whatever of Maya chronology. The term ' Full round ' is used to imply that each table repeats itself without variation ; i. e. that in Table A, the last date, 6 Ahau, 3 Tzec, is followed by the first, 4 Ahau, 8 Cumhu. Similarly with the table of Tun-endings.

Supposing it is desired to find the Calendar-round date of the series 9.16.5.0.0. First, from Table A, by counting the groups of Katuns, Cycle 9 is found to end on the day 8 Ahau, 13 Ceh (it must be remembered that the first group represents Cycle 0, the second Cycle 1, &c.). The 16th Katun of this Cycle (reckoning the first as 0) ends on 2 Ahau, 13 Tzec. The month-date, 13 Tzec, should now be found in the right-hand column of

Table B, and the figure 2 sought in the horizontal line of figures opposite it. Five Tuns should now be counted downwards *from* this figure, which will lead to 8 Ahau, shown by the right-hand column to fall on 8 Zotz. The Calendar-round date of the Long-count series 9.16.5.0.0, is, therefore, 8 Ahau, 8 Zotz.

In cases where the Long-Count date does not express a Tun-ending, further calculation is necessary. Supposing the count to register 9.16.5.17.3, the first operation is to discover the most recent Tun-ending, viz. 9.16.5.0.0, which, as shown above, can be ascertained from the tables to be 8 Ahau, 8 Zotz. From this point three separate calculations are necessary to discover : (1) the day-sign, (2) the day-numeral, (3) the month in which it falls and its position in that month.

(1) The Day-sign. This is found simply by reckoning forward, from the day Ahau (which concludes every period down to the Uinal) the number of days expressed as the Kin-number. In the present case that number is 3. Three days onward from Ahau lead to Akbal. The Day-sign, therefore, will be Akbal.

(2) The Day-numeral. First divide the number of days expressed in the Uinal- and Kin-numbers by 13. In the present example the Uinal- and Kin-numbers are 17.3, which equal 343 days. 13 divided into 343 leaves a remainder of 5 days, and in this calculation it is the remainder which is significant. This remainder (in the present case 5) must be added to the day-numeral, revealed by the tables as the numeral attached to the concluding day of the previous Tun. In the example, the number was 8 (8 Ahau, 8 Zotz). $8+5=13$, and this number, combined with the sign Akbal, already found by calculation, gives the day 13 Akbal. (Since the Day-numerals run only from 1 to 13, if the number had been over 13, then 13 would have had to be subtracted. For instance, if the Long-Count number had been 9.16.5.17.6, the Day-sign would have been Cimi (six days after Ahau), and the remainder left after dividing 13 into 17.6 (346 days) would have been 8. $8+8=16$, but the combination 16 Cimi is impossible ; and so 13 must be subtracted. This gives 3 Cimi, and date is solved as 9.16.5.17.6, 3 Cimi.)

(3) The month-sign and numeral. This is a simple operation, and consists in counting onward the number of months expressed in the Uinal-number (in the present instance 17), and then the number of days in that month expressed in the Kin-number (in the present instance 3). But this operation contains a trap. If the calculation leads the count of months past the month Cumhu, allowance must be made for the five Uayeb days which succeed it. 17 months onward from Zotz lead to Zip, but the allowance for the five Uayeb days reduces the Month-numeral by 5. Thus 17 months onward from 8 Zotz lead to 3 Zip (though

14 months onward would lead to 8 Cumhu).[1] Add the Kin-number (3 in the present example), and the result is 6 Zip. The final date, therefore, is 9.16.5.17.3, 13 Akbal, 6 Zip.

These tables are also useful in determining the possible Long-Count positions of a Calendar-round date. For instance, many of the inscriptions on the Menché lintels record only Calendar-round dates; Lintel (Exhibit G, on the North wall of the North-east landing) records 6 Caban, 5 Pop. In such a case, the first procedure consists in finding, by calculation, the month-position of the nearest day Ahau. Ahau falls three days after Caban, consequently, by adding three days we arrive at 9 Ahau, 8 Pop. Turning to Table B, Tun-endings, we look for 8 Pop in the right-hand column. Reading along the horizontal row of figures opposite this month-date, we find 9 Ahau in the second column to the left. This, considered in relation to the nearest horizontal bar above, is Tun 8 (reckoning the first Tun below the bar as 0) of a Katun which ended on 2 Ahau, 8 Zip. The next move is to find 8 Zip in the right-hand column of Table A, and then to find the numeral 2 in the row of figures opposite. This is discovered in column 4, as the concluding date of a Katun 2. Counting the groups of Katuns from the date 4 Ahau, 8 Cumhu (remembering that the first group represents Cycle 0) we find this to fall after the close of Cycle 11 on 6 Ahau, 8 Mac (11.0.0.0.0). So far, then, we have arrived at 11.2.8.0.0, 9 Ahau, 8 Pop. The Calendar-round date, of which the position is sought, falls three days before this, viz. 6 Caban, 5 Pop, and therefore, holds the position in the Long Count of 11.2.7.17.17. This date is manifestly impossible as the date of the monument, because it is far later than the latest date discovered in the Central Maya area. But the Calendar-round date 6 Caban, 5 Pop, occurred every 52 years (each of 365 days) which equals 18,980 days, or 2.12.13.0, as expressed in the Maya system.

By the deduction of successive periods of 2.12.13.0 days from 11.2.7.17.17, the Calendar-round date may be brought within the region of possibility. In the present case, the least number of Calendar-rounds to be deducted is eight, equalling 1.1.1.14.0, but the three previous occurrences of this Calendar-round are possible in relation to the Central Maya region as a whole. The dates to be considered are therefore:

| | | | |
|---|---|---|---|
| 11.2.7.17.17 | 10. 1. 6. 3.17 | 9.18.13. 8.17 | 9.16. 0.13.17 |
| 1.1.1.14. 0 | 2.12.13. 0 | 2.12.13. 0 | 2.12.13. 0 |
| 10.1.6. 3.17 | 9.18.13. 8.17 | 9.16. 0.13.17 | 9.13. 8. 0.17 |

[1] In reckoning backwards, if the Uayeb days are involved, an *addition* of 5 to the month-numeral is necessary.

This is an extreme instance. The final selection of the contemporary date now depends upon a comparison with other dates recorded at the same site (especially those which are definitely fixed in the Long Count), upon the relation of the monument to a definite architectural complex, and upon its artistic and technical qualities, judged in relation to other monuments at the same site. In the case of the lintel under discussion, the date 9.16.0.13.17 appears, from these considerations, to be the most probable.

# TABLE A. COMPLETE ROUND OF KATUN-ENDINGS

| *1* | *2* | *3* | *4* | *5* | *6* | *7* | *8* | *9* | *10* | *11* | *12* | *13* | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | Ahau— 8 Cumhu |
| 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | „ 8 Mac |
| 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | „ 8 Mol |
| 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | „ 8 Zip |
| 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | „ 13 Pax |
| 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | „ 13 Zac |
| 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | „ 13 Xul |
| 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | „ 13 Pop |
| 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | „ 18 Kankin |
| 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | „ 18 Chen |
| 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | „ 18 Zotz |
| 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | „ 3 Cumhu |
| 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | „ 3 Mac |
| 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | „ 3 Mol |
| 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | „ 3 Zip |
| 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | „ 8 Pax |
| 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | „ 8 Zac |
| 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | „ 8 Xul |
| 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | „ 8 Pop |
| 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | „ 13 Kankin |
| 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | „ 13 Chen |
| 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | „ 13 Zotz |
| 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | „ 18 Kayab |
| 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | „ 18 Ceh |
| 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | „ 18 Yaxkin |
| 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | „ 18 Uo |
| 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | „ 3 Pax |
| 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | „ 3 Zac |
| 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | „ 3 Xul |
| 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | „ 3 Pop |
| 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | „ 8 Kankin |
| 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | „ 8 Chen |
| 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | „ 8 Zotz |
| 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | „ 13 Kayab |

| 1 | 11 | 8* | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | „ 13 Ceh |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | „ 13 Yaxkin |
| 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | „ 13 Uo |
| 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | „ 18 Muan |
| 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | „ 18 Yax |
| 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | „ 18 Tzec |
| 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | „ 3 Uayeb |
| 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | „ 3 Kankin |
| 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | „ 3 Chen |
| 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | „ 3 Zotz |
| 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | „ 8 Kayab |
| 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | „ 8 Ceh |
| 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | „ 8 Yaxkin |
| 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | „ 8 Uo |
| 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | „ 13 Muan |
| 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | „ 13 Yax |
| 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | „ 13 Tzec |
| 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | „ 18 Cumhu |
| 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | „ 18 Mac |
| 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | „ 18 Mol |
| 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | „ 18 Zip |
| 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | „ 3 Kayab |
| 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | „ 3 Ceh |
| 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | „ 3 Yaxkin |
| 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | „ 3 Uo |
| 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | „ 8 Muan |
| 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | „ 8 Yax |
| 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | „ 8 Tzec |
| 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | „ 13 Cumhu |
| 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | „ 13 Mac |
| 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | „ 13 Mol |
| 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | „ 13 Zip |
| 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | „ 18 Pax |
| 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | „ 18 Zac |
| 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | „ 18 Xul |
| 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | „ 18 Pop |
| 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | „ 3 Muan |
| 5 | 2 | 12 | 9 | 6 | 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | „ 3 Yax |
| 3 | 13 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2 | 12 | 9 | 6 | „ 3 Tzec |
| *1* | *2* | *3* | *4* | *5* | *6* | *7* | *8* | *9* | *10* | *11* | *12* | *13* | |

* 9.0.0.0.0.

# TABLE B. COMPLETE ROUND OF TUN-ENDINGS

| *1* | *2* | *3* | *4* | *5* | *6* | *7* | *8* | *9* | *10* | *11* | *12* | *13* | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8* | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | Ahau—13 Ceh |
| 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | „ 8 Ceh |
| 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | „ 3 Ceh |
| 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | „ 18 Zac |
| 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | „ 13 Zac |
| 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | „ 8 Zac |
| 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | „ 3 Zac |
| 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | „ 18 Yax |
| 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | „ 13 Yax |
| 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | „ 8 Yax |
| 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | „ 3 Yax |
| 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | „ 18 Chen |
| 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | „ 13 Chen |
| 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | „ 8 Chen |
| 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | „ 3 Chen. |
| 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | „ 18 Mol |
| 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | „ 13 Mol |
| 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | „ 8 Mol |
| 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | „ 3 Mol |
| 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | „ 18 Yaxkin |
| 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | „ 13 Yaxkin |
| 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | „ 8 Yaxkin |
| 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | „ 3 Yaxkin |
| 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | „ 18 Xul |
| 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | „ 13 Xul |
| 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | „ 8 Xul |
| 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | „ 3 Xul |
| 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | „ 18 Tzec |
| 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | „ 13 Tzec |
| 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | „ 8 Tzec |
| 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | „ 3 Tzec |
| 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | „ 18 Zotz |
| 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | „ 13 Zotz |
| 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | „ 8 Zotz |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | ,, 3 | Zotz |
| 11 | 5 | 12 | 6 | 13 | 7† | 1 | 8 | 2 | 9 | 3 | 10 | 4 | ,, 18 | Zip |
| 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | ,, 13 | Zip |
| 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | ,, 8 | Zip |
| 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | ,, 3 | Zip |
| 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | ,, 18 | Uo |
| 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | ,, 13 | Uo |
| 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | ,, 8 | Uo |
| 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | ,, 3 | Uo |
| 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | ,, 18 | Pop |
| 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | ,, 13 | Pop |
| 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | ,, 8 | Pop |
| 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | ,, 3 | Pop |
| 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | ,, 3 | Uayeb |
| 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | ,, 18 | Cumhu |
| 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | ,, 13 | Cumhu |
| 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | ,, 8 | Cumhu |
| 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | ,, 3 | Cumhu |
| 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | ,, 18 | Kayab |
| 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | ,, 13 | Kayab |
| 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | ,, 8 | Kayab |
| 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | ,, 3 | Kayab |
| 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | ,, 18 | Pax |
| 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | ,, 13 | Pax |
| 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | ,, 8 | Pax |
| 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | ,, 3 | Pax |
| 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | ,, 18 | Muan |
| 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | ,, 13 | Muan |
| 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | ,, 8 | Muan |
| 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | ,, 3 | Muan |
| 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | ,, 18 | Kankin |
| 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | ,, 13 | Kankin |
| 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | ,, 8 | Kankin |
| 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | ,, 3 | Kankin |
| 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | ,, 18 | Mac |
| 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | ,, 13 | Mac |
| 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | ,, 8 | Mac |
| 10 | 4 | 11 | 5 | 12 | 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | ,, 3 | Mac |
| 6 | 13 | 7 | 1 | 8 | 2 | 9 | 3 | 10 | 4 | 11 | 5 | 12 | ,, 18 | Ceh |
| *1* | *2* | *3* | *4* | *5* | *6* | *7* | *8* | *9* | *10* | *11* | *12* | *13* | | |

* 9.0.0.0.0. † 10.0.0.0.0.

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MAP OF SOUTHERN MEXICO AND CENTRAL AMERICA, SHOWING THE PRINCIPAL MAYA SITES

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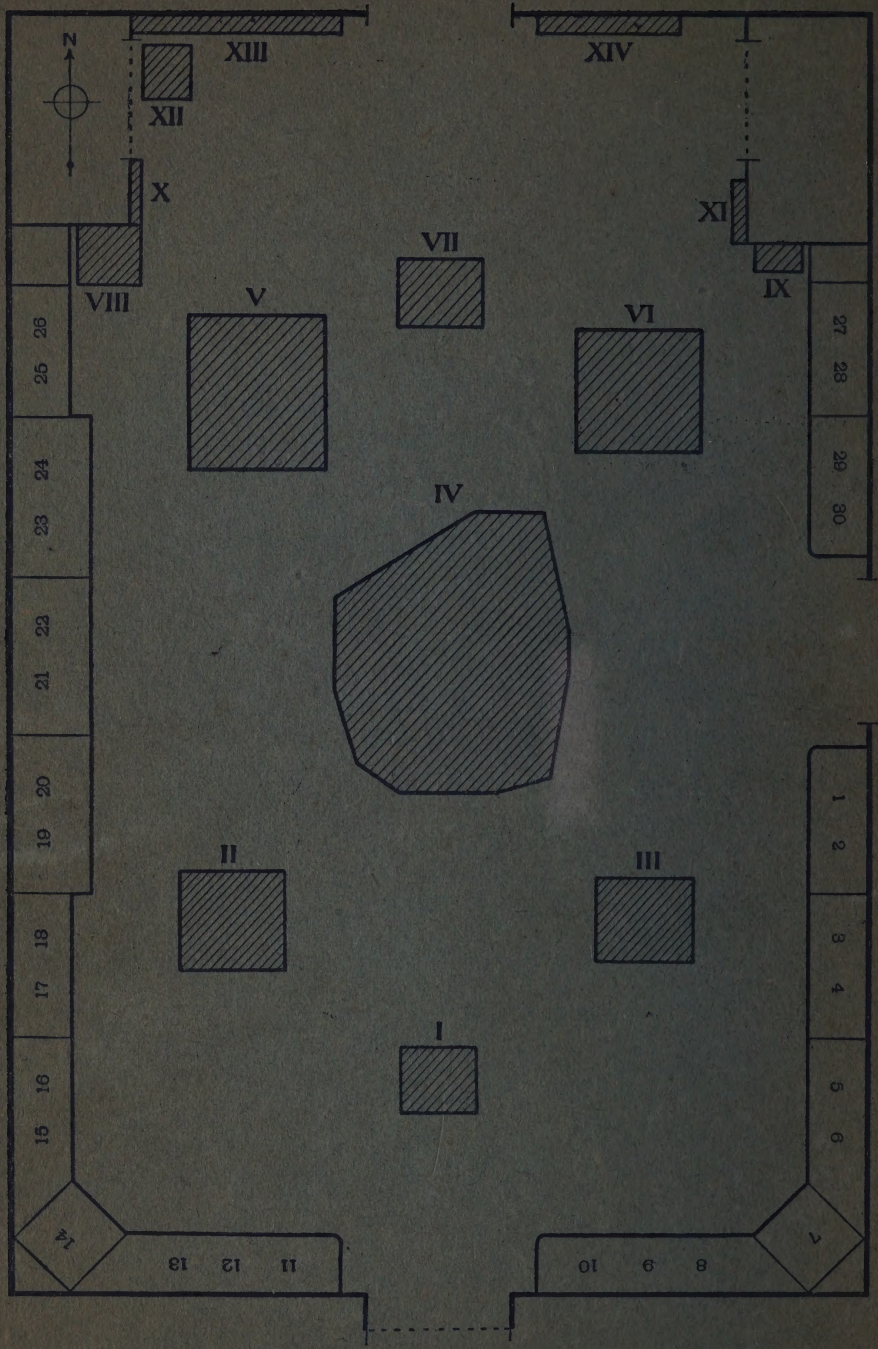


PLAN OF THE ROOM